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Across the Disciplines*



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Editor

Carolyn Guzski, Ph.D.

Interim Director

Office of Undergraduate Research

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Twenty-Second Annual Student Research and Creativity Conference**

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Table of Contents

Welcome Statements	1
Recipients of Undergraduate Summer Fellowships in 2020	5
Abstracts	
Arts	13
Business, Fashion & Textile Technology, Hospitality and Tourism	20
Communications and Humanities	25
Computer Information Systems and Engineering Technology	29
Education	34
Health and Social Work	35
Mathematics	36
Physical Geography and Sciences	38
Psychology and Social Sciences	45

Welcome to the 23rd Annual Student Research and Creativity Conference!

Welcome to the Buffalo State College Student Research and Creativity Conference e-Program.

The Student Research and Creativity conferences in the past have showcased some of the many students that engage in significant research and creative projects here at Buffalo State. This online edition will be no different. The student work you will see represents the research efforts of some of the best and brightest talent at Buffalo State College. Our student researchers have worked diligently with their faculty mentors to undertake research projects from all academic disciplines and in a variety of venues and formats. It is through this research that we will continue to acquire new knowledge and discover new approaches to problem solving. Studies have shown that research enhances what students learn in the classroom; engages their intellectual curiosity; satisfies their thirst for discovery; provides an outlet for their creativity and enhances future opportunities. We know that many of our students also gain self-confidence and grow intellectually by engaging in research and creative activities.



Enjoy learning about the questions explored by our student researchers and how their research results will stimulate new avenues of interest. Many students found research questions that commanded their current attention and will move them to develop future explorations and areas of new research.

I congratulate and commend the remarkable students who are participating in this year's e-conference and I thank the faculty who have inspired them to this level of accomplishment.

Katherine Conway-Turner, Ph.D.
President



Welcome to the 23rd annual Buffalo State Student Research and Creativity Conference (SRCC). I want to welcome you to explore this year's virtual Research & Creativity Conference. At Buffalo State College, we are deeply committed to promoting and facilitating meaningful student-faculty collaborative research and creative activities. This virtual conference is designed to highlight that commitment and celebrate academic and creative excellence of our undergraduate students. This celebration recognizes students' scholarly endeavors and allows them to present their accomplishments to the broader Buffalo State Community. Due to the COVID-19 pandemic, our student researchers and faculty collaborators and mentors have had to face additional challenges and roadblocks this past year. The fact that so many students were able to respond to and rise above these unprecedented challenges reminds us of the importance of perseverance and resourcefulness as well as creativity. The SRCC could not happen without the hard work of the students, faculty, and staff who have devoted their time and talents to this event. Congratulations, and thank you for your dedication.

James Mayrose, Ph.D.
Provost and Vice President of Academic Affairs

Welcome, everyone!

Welcome to all of the students, faculty, administration, staff, family, and friends who contribute to this festive tradition and showcase of talent that culminates our spring semester each year at Buffalo State. The 23rd annual Student Research and Creativity Conference marks our second anniversary of forging ahead on a virtual platform, and I congratulate this year's student presenters and faculty mentors for their intrepid spirit in joining Undergraduate Research on this very 21st-century journey.

I thank Buffalo State's founding and past directors of Undergraduate Research, Dr. Jill K. Singer, Distinguished Teaching Professor of Earth Sciences and Science Education, and M. Scott Goodman, Officer-in-Charge of the School of Natural and Social Sciences, for their leadership in developing the solid foundation that has contributed to the robust research and creative endeavors demonstrated by our campus community this year. Undergraduate Research continues to benefit from—and build upon—a rich array of programs that serve Buffalo State's academic web of support in all disciplines on our campus and beyond.

A final word of appreciation on the Bengal spirit so generously shared by the artistry of Kaylene Waite in Creative Services and the Digital Commons wizardry of scholar Hope Dunbar at E. H. Butler Library. Digital SRCC 2021 could not have launched without them!

Carolyn Guzski, Ph.D.

Associate Professor of Music

Interim Director, Office of Undergraduate Research



Welcome!



The annual Research and Creativity Conference is one of the highlights of the academic year at SUNY Buffalo State. It provides our undergraduate and graduate students the opportunity to showcase their scholarly and creative accomplishments. The work displayed at the conference attests to our faculty's commitment to mentoring and our students' commitment to engaged learning. As research and scholarship are critical parts of the graduate education experience, the Graduate School is honored to support this work. Congratulations to all those contributing to this inspiring event!

Kevin J. Miller, Ed.D.
Dean, The Graduate School



On behalf of the School of The Professions, I would like to welcome students, faculty, staff, and friends of Buffalo State to the 23rd annual (and second virtual) 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. I am delighted that even with the disruptions caused by the coronavirus, our students and their mentors persevered to complete their research projects! Those 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 virtual event, and I sincerely thank all the faculty mentors for their contributions to student achievement.

Rita M. Zientek, Ph.D.
Interim Dean, School of The Professions

On behalf of the School of Arts and Humanities, I welcome you to the 23rd Annual Student Research and Creativity Conference and offer congratulations to all those who are involved. This conference is one of the most important events of the academic year as it allows us to celebrate the many students at Buffalo State who have successfully completed a significant research project or creative activity. The successes highlighted in this conference are at the very heart of Buffalo State's educational mission; they show us that we are surrounded by highly engaged, inquisitive, creative, and empowered students whose efforts enrich the Buffalo State community. The research projects and creative activities featured in this year's conference are particularly impressive for having been completed during a pandemic that has altered so many of our daily routines. Thank you to everyone – students, mentors, friends and family members, and event organizers – whose efforts have culminated in this showcase of student achievement.

Julian C. Cole, Ph.D.
Officer-in-Charge, School of Arts and Humanities





I have never had more media interest in the topics relevant to teacher and leader education than I have fielded this year! The good news is that the reporters were truly interested in the profession of teaching and genuinely concerned about the impact of this year's isolation and on-again off-again remote learning environments on children in grades Pre-school to Grade 12.

Many public documents describe 2020-2021 as “the lost year” in learning. I will take this opportunity to vehemently protest that this year was not lost in any sense of the word. Teaching never stopped. In fact, teachers were “dancing” ever faster to manage learners spread across the geographic area of their school districts, even spread around the world in the case of our international partnerships. Children did not stop growing and developing, and the nurturing adults in their lives all strove together to assure the engagement of the young in the options available to them. Just as our young children and adolescents were challenged to think in new ways, search out new directions for their learning and manage the unimaginable weight of sorrow and worry this virus has doled out, we in higher education have risen to the challenges presented to us. This wonderful celebration of scholarship and research is strong evidence that inquiry and curiosity and experimentation and observation and learning in all of its forms—in classrooms and out—did not stop at Buffalo State! Let us take the opportunity to marvel at the unique vision, original thought, and creative manipulation of both the real and the fantastic that we have seen demonstrated daily by teachers and learners at all levels of education. Congratulations to our 2021 student presenters and faculty mentors!

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

I am very pleased to offer my congratulations to all the students and faculty mentors who have submitted their work to the 23rd annual Student Research and Creativity Conference. I invite family, guests, and the entire Buffalo State community to participate on-line in this premier Buffalo State event. I can't begin to describe how proud I am of the hard work being conducted by students and faculty during this exceptionally difficult time. Student engagement with faculty in research and creative projects is one of our highest priorities in the School of Natural and Social Sciences, and the broad participation across all our disciplines, inclusive of undergraduate and graduate students, demonstrates our collective commitment to this principle. I look forward to experiencing the numerous virtual presentations and learning about the outstanding work conducted by Buffalo State students during the 2020-2021 year.

M. Scott Goodman, Ph.D.
Officer-in-Charge, School of Natural and Social Sciences





Genna Baldassarre, Geology

Faculty Mentor: Professor Gary Solar, Earth Sciences

Structural and Geochemical Documentation of Metamorphic Rocks from Coastal and Inland Maine

Genna is a senior geology major graduating in the spring of 2021. She is specifically interested in structural and tectonic geology, but makes it a priority to be proficient in all areas of geology. After graduation, Genna will continue her studies in the master's degree program in geosciences at Utah State University. She hopes to work in the private sector upon graduation.

During her fellowship, Genna spent many hours in the Orogenic Studies Laboratory at Buffalo State, analyzing the mineral and structural data of rocks collected from the Freeport, Maine region in order to compare them to Kopinski's samples (2019) along the Norumbega Shear Zone System. Genna found that the Freeport samples are very similar to Kopinski's, but differ in intensity of porphyroblast matrix and mineral matrix. This data was further explained by utilization of the SURFOR wheel to appropriately document grain size and foliation intensity. This further explains how as you move closer into the shear zone, rocks become more and more lower grade. Genna's research was successfully presented at the Geological Society of America-Northeast spring 2021 conference.



Ashly Canute, History

Faculty Mentor: Professor Lisa Berglund, English

The Life and Times of George W. Jonson, Buffalo Lawyer and Abolitionist

Ashly is a senior majoring in History with a minor in Literary Studies. After completing her baccalaureate degree, she hopes to further research her principal interest in medieval history at the graduate level.

During her fellowship, Ashly transcribed and created a scholarly edition based on the journals of George W. Jonson (1801- 1880), a Buffalo abolitionist and lawyer. Transcribing a portion of Jonson's diary revealed details about his rich political activism, and digitizing some of his entries gives access to a valuable primary source for future researchers. This edition will be presented to the Buffalo History Museum for their collection on Jonson.



Thomas Carr, Philosophy and Criminal Justice

Faculty Mentor: Professor Leigh Duffy, Philosophy

Injustice in the Justice System: Using Ancient Philosophy as a Tool for Criminal Justice Reform

Thomas is an Honors College student who graduated in December 2020 with a dual major in Philosophy and Criminal Justice. His academic interests include Philosophy of Law, Ethics, and Criminal Justice Policy. He explored the intersection of these areas in two separate SRCC projects in addition to his USRF 2021 research project. He plans to attend Michigan State University College of Law in Fall 2021 to earn his J.D., and hopes to pursue a career in Public Policy.



During his fellowship, Thomas read extensively on the theory of justice in Plato's *Republic* as well as contemporary criminal justice literature. He also interviewed individuals working in the criminal justice system, including several attorneys and a judge, and identified specific issues of injustice that our system faces. Thomas argued that these issues are demonstrative of Platonic injustice. He offered suggestions on reform initiatives and policy changes that should be pursued to alleviate these injustices in a philosophy paper that he presented in the fall and hopes to publish in an undergraduate philosophy journal.

Jaclyn Chuchanis, Graphic Design

Faculty Mentor: Professor Emerita Carol A. Townsend, Art & Design

The Street Life of Trees: An Urban Guide

Jackie is a senior Graphic Design major who graduates this May. Currently, she is employed as a full-time graphic designer at CitiBank in Buffalo. Jackie's interest lies in creating works with a variety of media, especially those that spark a change or promote the importance of environment.



For her fellowship, Jackie created a 64-page softcover book, *The Street Life of Trees: An Urban Guide*, commissioned by SUNY Buffalo State Friends of the Maud Gordon Holmes Arboretum. This publication showcases Jackie's art and design work while highlighting the importance of trees and shrubs in our urban environment. Through this project, Jackie learned to lay out a major publication, to professionally discuss and share ideas with her assembled faculty team, and to communicate with a publisher. *The Street Life of Trees* is currently being sold online at thestreetlifeoftrees.com (new and renewing Arboretum members receive the publication for free). Monies from sales will be used to enhance one of Western New York's most beautiful urban landscapes here on the Buffalo State campus.

Tracy Clark, Music

Faculty Mentor: Professor Carolyn Guzski, Music

Harlem Renaissance Man: Towards a Comprehensive Biography of Actor-Singer Frank H. Wilson

Tracy is a December 2020 graduate of the Bachelor of Arts in Music program, where she majored in Voice and Bassoon. This fall she will pursue the Master of Music degree in Musicology at the University of Tennessee, Knoxville, where she has been awarded a UT Access and Diversity Fellowship and a Graduate Teaching Assistantship. She will assist faculty with teaching and research within UT's historical musicology and ethnomusicology program.



In her fellowship, Tracy focused on the life of the Broadway actor and singer Frank H. Wilson (1886-1956), renowned for creating the title role in *Porgy* (1927), which served as the basis for George Gershwin's opera *Porgy and Bess*. Wilson's achievements in stage, film, and broadcasting significantly won him a place in the *African American National Biography*. Tracy's findings filled in several significant lacunae in Wilson's life, including his educational background, his foundational training, and the early development of his professional acting career.

Carleen Gabrys, Fashion and Textile Technology

Faculty Mentor: Professor Arlesa Shephard, Fashion and Textile Technology

Reproducing History: A Doll's 1850s Calico Dress

Carleen is a returning student with a background in Linguistics and Education, and is currently a senior pursuing a dual degree in Art History and Fashion and Textile Technology with a concentration in Textile Design. After graduating in Fall 2021, she plans to pursue doctoral studies focusing on the use of contemporary technologies in the preservation and reproduction of historic textiles.



During her fellowship, Carleen worked with the Buffalo History Museum to recreate the dress of a 19th-century doll, beginning with documentation through photographs and measurements. The textile of the garment was recreated using digital design applications and printed for use in the final reproduction. Carleen also researched extant historical garments to explore the process of drafting patterns from them and the historical sewing methods used. The final reproduced dress was displayed on the doll in the collection of the Buffalo History Museum, and Carleen's research has been accepted for presentation at the 2021 Annual National Symposium for Costume Society of America in May 2021.

Kyle Glenn, Biology (Aquatic Concentration)

Faculty Mentor: Professor Christopher Pennuto, Biology

Invasive Round Goby (*Neogobius melanostomus*) in Tributary Streams of Eastern Lake Erie: Re-examining its Role 15 Years after Initial Assessment

Kyle is a senior Biology major expecting to graduate in spring 2021. He has been interested in studying community dynamics and interactions in stream environments. After graduation, he will pursue a master's degree in Biology at Buffalo State and aspires to work for an environmental firm in the field of native species conservation and stream protection.

During his fellowship, Kyle discovered that round gobies have expanded their range to new streams since the previous survey in 2005, and insect communities in streams harboring gobies during the past fifteen years are now more greatly impacted by the goby. By re-assessing stream insect community metrics of mean abundance, mean taxa richness, and Shannon Diversity (which were among the metrics first assessed by a previous graduate student in 2005), Kyle findings showed that all three metrics were more degraded in 2020.



Erica Green, Africana Studies

Faculty Mentor: Professor Cameron Herman

Black Twitter, Sexuality and Gender Identity regarding Zaya Wade: A Review of the Literature

Erica is a senior majoring in Africana Studies who will graduate in the spring of 2021. She is interested in the history and advancement of Africana Studies, and plans to pursue graduate work in Africana Studies with the goal of becoming a professor.

During her fellowship, Erica reviewed the academic literature to understand how her interest in Black Twitter's online discourse about twelve-year old Zaya Wade's gender identity transition is connected to existing scholarship. She focused on two bodies of literature: (1) Black Feminist perspectives on gender and sexuality; and (2) Black Twitter as an online discursive community. As a result, Erica learned that viewing Black Twitter as a contemporary discursive site can illuminate social media's role in upholding or challenging dominant notions of gender. Erica continued her research in the 2020-21 academic year with an extensive literature review and further data collection.



Joseph Marino, Art History & Photography

Faculty Mentor: Professor Yola Monakhov Stockton, Art & Design/Photography

Queer Colors: Portraiture and Hand-Tinting in the Wake of a Pandemic

Joseph Marino is a Senior in Art History expecting to graduate in Spring 2021. He has been interested in the intersection of identity, sexuality, and religion, which have served as the base for his studies in photography. After graduation, he plans to pursue graduate studies and ultimately pursue a career in the arts field.

During his fellowship, Joseph discovered that identity is multifaceted and constantly changing. He learned to create a long-term project plan and navigate its obstacles. He is working toward exhibiting his work in the future and will be submitting a proposal for exhibition in local galleries.



Tania Miah, Social Work

Faculty Mentor: Professor Tonya Myles-Day, Social Work

Improving Mental Health for Inmates at the Erie County Holding Center

Tania is a senior majoring in Social Work who is graduating in the spring of 2021. She has a passion for advocating for social justice issues, including those experienced among the prison population. After graduation, she plans to pursue a master's degree in Social Work at the University at Buffalo and aspires to a career working with children.

During her fellowship, Tania created a survey that was administered to the staff at the Erie County Holding Center. Based on her survey results, news articles, and an official report by the prison, she proposed new ideas to help reduce the deaths at the Erie County Holding Center. Tania proposed effective communication strategies within the different departments, as well as implementing more training focused around trauma-informed care and a new screening tool for inmates as they undergo processing procedures.



Elizabeth Rakowski, Political Science/International Relations

Faculty Mentors: Professor Mehwish Sarwari, Political Science and Professor Patrick McGovern, Political Science

Small Island Developing States and the Influence of Foreign Direct Investment on Climate Aid Commitments

Elizabeth is a senior in International Relations who expects to graduate in Spring 2021.

She has interests in exploring the field of climate change, the relationship between political economy and climate aid, politics of small island developing states, and human rights violations. Inspired through interning at the European Union to the United Nations and the Permanent Mission of Fiji to the United Nations, she intends to seek similar work experiences before pursuing graduate studies to further her research and publication goals.

During her fellowship, Elizabeth discovered a statistically significant relationship between U.S. foreign direct investment (FDI) outflows and climate aid allocation. Results suggest that the more FDI within a country, the more likely donors will provide climate aid to protect their investment and economic interdependence. Small Island Developing States (SIDS) are extremely vulnerable to climate change, and securing climate aid is necessary for survival and development. Elizabeth's research was presented at the National Conference for Undergraduate Research in April 2021.



Aniyah Williams, Health and Wellness

Faculty Mentor: Professor Marcus Watson, Africana Studies

Youth Activism in the Caribbean: Then and Now

Aniyah is a senior majoring in Health and Wellness with a minor in Biology. She is expected to graduate in spring 2021 and plans to pursue a doctoral degree in the biomedical sciences. With a deep interest in Africana Studies and an Afro-Caribbean background, she has been fascinated with the youth-led Black Power Movement and its legacy on the island of Trinidad.

During her fellowship, Aniyah examined methods used for social change and its effectiveness throughout the Black Power era of the 1970s in Trinidad and Tobago. She compared these historical methods with today's youth activists on the islands. She discovered a range of strategies and ideals that can be globally implemented in fighting social injustices and unfair biases. Aniyah presented her research on a panel at the 44th annual National Council for Black Studies (NCBS) conference in Atlanta.







Arts

Beethoven's Ode to Nature

Zanayia Hercules, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Many works of Ludwig van Beethoven (1770-1827) are derived from his own experiences in life. Beethoven's Symphony no. 6 in F major, op. 68 ("Sinfonia pastorale") was his largest and most characteristic work at the time—he created a fifth movement as opposed to the typical four in symphonic composition. Directly inspired by the composer's deep appreciation of nature, the Pastorale is highly descriptive through sound alone, without the use of poetic text, and Beethoven's musical expression is seamless throughout the entire symphony. Beethoven even described this piece as "more an expression of feeling than painting." This symphony includes a variety of textures and harmonies suitable for only the most nuanced musicians. My project explores the realm of the Pastorale's performance practice to reveal what Beethoven may have expected from performers at that time. This allows me to apply this practice when personally performing this piece or others of its era. Beethoven's music and style can be recognized and appreciated globally; moreover, many of his compositions have made their way into 20th-century film. The Sixth Symphony, for example, is featured prominently in Disney's original *Fantasia* (1940). I conclude that Beethoven's innovations as a composer, and his success in bringing new ideas as well as previous historical elements to his music, continue to be influential to modern audiences in our own time.

Beethoven's Favorite Late Period String Quartet

David Rundell, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Ludwig van Beethoven (1770-1827) is my favorite composer because I admire and enjoy his use of counterpoint. Beethoven's Late Period String Quartet in C# minor, op. 131 stands out for its variety of stylistic influences, and the varied characters and structural forms of its seven movements. Its performance length is thirty-five minutes and the music flows uninterrupted, without the typical pauses between movements. Beethoven completed the Quartet in 1826 but died before it was published in 1827. The composition was considered to be avant-garde for its time and was not publicly performed until 1835. Robert Schumann, Richard Wagner, and Franz Schubert were all fans of this renowned Quartet. This composition

was dedicated to Baron Joseph von Stutterheim, a decorated military lieutenant who took Beethoven's nephew Karl into the army as a personal favor. My project investigates several queries about Beethoven and his work. How did Beethoven's tragic early hearing loss affect his Late Period writing? Why was this piece Beethoven's favorite of his final String Quartets? How are the movements of this piece so different yet fit together so well? Did Beethoven acknowledge any artistic influences on his highly original Late Period works?

Behind Frank Ticheli's An American Elegy

Skyler Graham, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

My project delves into the tragically haunting composition of *An American Elegy* by Frank Ticheli (b.1958). While *An American Elegy* is a beautiful and hopeful piece, it represents a much darker event. Ticheli composed this piece to commemorate those that lost their lives in the 1999 Columbine Shooting. I performed this piece as a flutist during my own high school years, and it remains my favorite piece composed specifically for wind ensemble. I look at the piece not only from a narrative perspective, but also from a technical one, through study of Ticheli as a living composer in his own words, and through modern criticism of his work by others. I discuss Ticheli's musical and technical background, then analyze the work itself and what it depicts, by identifying *An American Elegy's* principal motives and what they represent. My project seeks to learn what the piece means to Ticheli through its musical nuances and how they become structurally functional and cohesive in his hands. Its goal is to explore the musical influences found in the piece and what makes it so exceptional in modern American musical expression.

Book Layout Design with Adobe Creative Suite: Designing an Archaeology Manuscript

Xinyi Mo, Art & Design
Faculty Mentors: Professor Susan Maguire, Anthropology and Professor Lisa Marie Anselmi, Anthropology

During fall 2020, Emily Cendrowski and I received Early Undergraduate Research Opportunity [EURO] awards to design a manuscript layout for an edited volume on New York State Archaeology with Buffalo State professors Susan Maguire, Ph.D. and Lisa Marie Anselmi, Ph.D. Using Adobe Photoshop and InDesign, we worked together to create a template for layouts for each chapter of the book. Specifically, the layout process involved inserting and formatting the final text and images, which will

subsequently be reviewed and revised in Adobe Photoshop prior to publication. Through creative problem-solving, it was possible to attempt a variety of possibilities to explore which would be the most visually appealing and professional in appearance. This project gave us both the opportunity to better understand the fields of anthropology and book publishing.

Dance and Design

Salvatore Giangreco-Marotta, ALT490: Senior Seminar
Faculty Mentors: Professor Joy Guarino, Theater and Professor Naila Ansari, Theater

The focus of the Dance and Design project was to develop a personal choreographic process by consciously incorporating elements of design into the dance composition, resulting in the strengthening of the themes and ideas of dance pieces. Dance and design share many overlapping ideas because they are both forms of communication. I initially wanted to see if applying design elements to dance composition would translate between the two art forms. I researched elements of choreography and design. I then simultaneously incorporated the design elements in the choreographic process and created a presentation that symbolized both the design elements and the respective dance piece. The principles of design applied were Proximity, Color, Contrast, Typography, Repetition, Alignment, Hierarchy, Emphasis, White Space, and Balance. Some of the elements are already considered when choreographing, while the others influence and strengthen choices in choreography. During my junior year, a graphic design class inspired me to see similarities between dance and design. Dance and design have always been connected. Partnerships like the one between choreographer Martha Graham and designer Isamu Noguchi is a great example of how design elements can influence dance. I have found some choreographers who also explore the connection between dance and graphic design, but not in the way I have done. In my video, I discuss my process and show my original dance pieces and their accompanying posters, demonstrating how the elements translate between dance and design.

The Diversions of Morton Gould

Alexander Minney, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Morton Gould (1913-1996) had an extensive compositional career that spanned nearly the entirety of the 20th century. Towards the final years of his life, he began to compose using less conventional techniques. One of these compositions, *Diversions for Tenor Saxophone and Orchestra* (1991), is a prime example. For any potential performer of this piece, the writing styles defy anything one might expect from Gould's previous musical experiments with time and sound. My study uses a full-score analysis to discover how Gould managed to write such a unique

piece, while not drifting too far from the cohesive structure and integrated sound one would expect from a composer of his enormous talent. With research into the conventions that emerged from the Modernist period in music history, along with ideas about the use of instrumentation authored by Gould himself, this analysis seeks to explain the artistic solutions that Gould devised in his *Diversions*. Overall, within this relatively brief entry in Gould's compositional output, I analyze his unique sound within a traditional structure.

Do Not Go Gentle: Elliot Del Borgo's Symphonic Poem

Rachel Ward, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Inspired by the celebrated Dylan Thomas poem, Elliot Del Borgo's (1938-2013) tone poem for symphonic band, *Do Not Go Gentle Into that Good Night* (1978) utilizes twentieth-century compositional techniques to portray the memory of two of the composer's own students who died tragically in a car accident. Not quite a direct interpretation of the poem, Del Borgo uses techniques like polytonality, thematic and rhythmic motives, instrumentation grouping, and motivic layering to develop his theme of the human soul's persistence and refusal to "go gentle." Del Borgo was born in Port Chester, New York and spent most of his career teaching at SUNY-Potsdam's Crane School of Music, where he had earned a Bachelor of Science degree. Del Borgo received a Master of Education degree at Temple University and a Master of Music at the Philadelphia Conservatory, where he studied music theory and composition under Vincent Persichetti, a well-known twentieth-century American composer and teacher. Throughout this piece, stylistic techniques from composers like his former professor, Persichetti, Charles Ives, and Paul Hindemith can be heard as well to further develop the overall theme of the piece. In my project, I analyze excerpts from the piece and directives from Persichetti's book *Twentieth-Century Harmony* to demonstrate Del Borgo's use of these techniques to develop the "essence" of the poem.

Father and Son: The Musical Relationship of Richard and Franz Strauss

Lindsey Roth, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Richard Strauss (1864-1949) spent almost 80 years of his life composing music. At 19, he composed a piece for his father, a famous French horn player, to perform: the *Horn Concerto No. 1* (1883). However, his father deemed it too difficult to play, and so never performed the piece in public. In this project, I focus on both the father and the son and their dynamic as portrayed by the *Horn Concerto*. First, I attempt to analyze why Franz Strauss refused to play the piece his son wrote for him. In doing

so, I detail the valveless natural horn that Franz Strauss was adept at playing and for which his son wrote the piece, versus the valved horn that this solo is typically played on [GC6]. The quick-moving chromatics of the piece make it difficult to control solely by “stopping”, or using the right hand or a mute to plug the bell of the horn to produce the correct notes. I then turn my focus onto Richard Strauss himself. Franz Strauss influenced his son by pushing him towards a conservative musical style. However, much of the Horn Concerto indicates Richard Strauss’s compositional style becoming more Romantic or Modern. I utilize musical examples from the score to show themes of the piece that are more theatrical and experimental. Richard Strauss’ Horn Concerto not only details the composer’s beginnings, but it also allows a deeper view into his relationship with his father.

Giacomo Puccini: Writing Until the Last Breath

Matthew Bouchard, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Giacomo Puccini (1858-1924) spent the final five years of his life composing his final opera, *Turandot* (1926). Before tragically dying of a heart attack due to complications from his throat cancer, Puccini completed nearly the entire opera – up until the final scene. He left behind 23 pages of notes on his bedside table in a Brussels hospital, where he had been working up to the final moments of his life. What survived him was a gorgeous and exceptionally extensive “fragment” produced by an artist at the peak of his creative and intellectual form. The opera is based on the eighteenth-century play *Turandot* (1762) by Count Carlo Gozzi. No opera of the Italian tradition that preceded Puccini’s *Turandot* attempted to forge such a strong integration of music and drama. Additional influences that helped create this masterpiece came from the East, most notably Asia. The story is set in China, and many Asian musical motifs are used throughout. Puccini takes full advantage of the pentatonic melodies foundational to traditional Asian music. I focus on the famous aria found in the third act: “Nessun Dorma,” and how it has become so popular due to the stirring melody and beautiful harmonies that Puccini wrote. My analysis reveals why Puccini’s final unfinished project was ahead of its time and stands apart from works by other composers of his era.

Harlem Renaissance Man: Towards a Comprehensive Biography of Actor-Singer Frank H. Wilson

Tracy Clark, Music
Faculty Mentor: Professor Carolyn Guzski, Music

Among the important artists of the Harlem Renaissance is the noted Broadway actor and singer Frank H. Wilson (1886-1956), renowned for creating the title role in *Dorothy* and

DuBose Heyward’s Porgy (1927), the phenomenally successful Broadway play that served as the basis for George Gershwin’s classic opera *Porgy and Bess*. From humble beginnings in New York’s Tenderloin district, Wilson began his acting career on the vaudeville circuit and was included among a small cohort of African American talent selected to receive dramatic training at the esteemed American Academy of Dramatic Art while he concurrently worked with Harlem’s pioneering Lafayette Players as both actor and playwright. Wilson’s subsequent Provincetown Playhouse appearances link him with the young Eugene O’Neill and his interracial drama *All God’s Chillun Got Wings* (1924), in which he later played the lead on the London stage. Wilson was also the first performer of color credited in a Metropolitan Opera program (*Skyscrapers*, 1926), but it was his unexpected breakout performance in the Pulitzer Prize-winning play *In Abraham’s Bosom* (1926) that led to the starring role in *Porgy*. Wilson also acted in numerous films, and his career extended into the broadcasting era with numerous appearances on early radio and television. Although he has been overshadowed by celebrities like Charles Gilpin and Paul Robeson, his significant achievements won him a place in the African American National Biography. My project addresses several historical lacunae, including Wilson’s early personal experiences, details of his foundational training, and the development of a professional acting career on Broadway and in Hollywood. The project aimed to complete a more comprehensive study of Wilson’s life than is presently available in historical studies, using a combination of archival documents, genealogical research, and secondary texts.

Innovative Radio Opera of the 1930s: Menotti’s *The Old Maid and the Thief*

Maria Taravella, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

My project focuses on Gian Carlo Menotti’s (1911-2007) opera *The Old Maid and the Thief*, written at the inception of his distinguished career in 1939. As a classically trained singer, I am personally invested in this opera, having played one of the principal characters, Laetitia. Thus, I have had the opportunity to study the score in considerable depth. I join this performance perspective with the work’s historical background during the mid-20th century, when Menotti’s career was at its peak, to gain insights into why the opera was widely acclaimed. I delve into two of its musical set pieces: Laetitia’s aria “Steal Me, Sweet Thief,” and Bob’s aria, “When the Air Sings of Summer.” I compare and contrast the use of recitatives, key, and articulation, among other musical concepts, to determine how Menotti developed his characters through compositional techniques that fuse music, libretto, and drama. I also devote attention to the analysis of the relationship between the orchestration and the solo voice, a key dynamic pairing in the operatic genre. My discussion points

contribute to my project goal of explaining why and how *The Old Maid and the Thief* was so successful as a radio opera, through audio means alone.

Liszt's Dreams of Love

Kathleen Dunne, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

The Romantic composer Franz Liszt was arguably one of the greatest pianists of all time. His own original compositions – clearly written for his own use as a touring virtuoso – reflected this. One of his most famous pieces, *Liebestraum* [Dreams of Love], is comprised of a trilogy of piano works inspired by love poems written by the German poets Ludwig Uhland and Ferdinand Freiligrath. The poetic appeal commonly heard in Romantic era music is clearly present in this composition. In that regard, freedom of form and design aligns perfectly in Liszt's work because of his seemingly random key changes and symbolism behind the polarity of musical keys and love. The influence that Frédéric Chopin, a fellow Romantic composer-pianist and close friend of Liszt, had on these pieces is undeniable. As a performing pianist, my project goal is to understand the imagery and poetry behind this piece and the sheer complexity in realizing these characteristics in performance. I dig deeper into the brain and heart of Franz Liszt to understand the sense of idealized love he embodied in these compositions. There is great beauty in being able to perform a piece while understanding its full meaning, and extremely rewarding to discover how that meaning relates to one's own personal experience.

Making Weird Music: Atonality and a Mandolin

Michael Parrizzi, MUS303: Music History 2
Faculty Mentors: Professor Carolyn Guzski, Music and Professor Evan Drummond, Music

Anton Friedrich Wilhelm von Webern (1883-1945), the son of a mining engineer, studied the cello and piano from childhood and continued with a musical life, pursuing musicology and compositional at the University of Vienna. Webern and Alban Berg became regarded as the most significant pupils of Arnold Schoenberg, joining him as Second Vienna School innovators--following the First Viennese School of Haydn, Mozart, and Beethoven--in the use of 12-tone technique during the early decades of the 20th century. The technique, known as serialism, avoids tonal centers and traditional harmony in favor of composing equally with all twelve notes available within the Western musical octave. I focus on Webern's compositional technique--stricter than even Schoenberg's--in his *Five Pieces for Orchestra*, op. 10, a product of the composer's early "aphoristic" period (1908-1914). Aphorisms were brief and concise, and Webern took the aesthetic to the extreme with one movement

comprised of only six measures. His op. 10 orchestration is rather avant-garde, including instruments not typically heard in a symphonic context, such as mandolin, guitar, and celesta. I discuss the organology of these instrumental families and analyze op. 10 from the unusual perspective of the mandolin's history. My goal is to illuminate Webern's sense of timbral experimentation within a strict musical process.

Mozart's Crazy Day

Madison Marsala, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

In his work with librettist Lorenzo Da Ponte, Wolfgang Amadeus Mozart (1756-1792) was able to construct one of the most impressive operas of the Classical era, *Le nozze di Figaro* (*The Marriage of Figaro*, 1786), which changed the way narration and storytelling took place on the Classical lyric stage. As one of Mozart's three famous Italian operas, *Figaro* is unique in the way that it allows expressive depth within the characters and their relationships through not only the actors' performances, but the musical element themselves. The focus of the Overture in Act I is the way orchestration helps tell the characters' stories. I discuss its musical elements to harmonically analyze the score and each of the instrument's roles. Act I begins with the lives of our main characters, Figaro and Susanna, as they plan their wedding while trying to stabilize their relationships with the Count and Countess whom they serve. Mozart creates strong and relatable characters and relationships with their struggles over money, lack of power, and the quest for love, as well as enduring sense of protection Figaro and Susanna have for each other.

Mozart's Lost Composition?

Caitlyn Faddis, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

In 1996, musicologists found the missing work *Der Stein der Weisen* [*The Philosopher's Stone*], composed in 1790 but lost since 1814. The work was a complete *Singspiel*, a German operatic form that more closely resembles musical theater. *Der Stein der Weisen* was jointly composed by Johann Baptist Henneberg, Benedikt Schack, Franz Xaver Gerl, Emanuel Schikaneder, and Wolfgang Amadeus Mozart. Its libretto was also written by Emanuel Schikaneder, who would go on to create the iconic *Die Zauberflöte* [*The Magic Flute*] with Mozart, and musicologists now believe that *The Magic Flute* may have been modeled on the lost *Singspiel*. *Der Stein der Weisen* is based on a fairy tale published in 1780 by Christoph Martin Wieland called *Dschinnistan* [*Exquisite Fairy and Ghost Tales*]. In the famous "Nun, liebes Weibchen" [*Now, Lovely Maiden*], known as "The Cat Duet," Mozart used his vast knowledge of Classical technique to compose this amusing work. In accordance with Mozart's

position among the First Vienna School (along with Haydn and Beethoven), its predominant stylistic texture was homophonic, with inventive melodies clearly projected over a chordal accompaniment. The duet begins with a vividly optimistic opening heard in the strings and woodwinds, as the character Lubano (baritone) attempts to communicate his wife, Lubanara (soprano), who can only respond with a comic “meow.” They met with the bad side of a sorcerer! I performed this duet as the soprano Lubanara with the Buffalo State Philharmonia, and found that the rediscovery of this Singspiel gives us a wonderful opportunity to experience how 18th-century audiences responded to Mozart’s original creation. Using manuscript findings that had been lost for over 150 years, my project seeks to analyze Mozart from this fresh perspective.

Piano Possibilities: Debussy’s Preludes

Zachary Becker, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

In 1870, the French composer Claude Debussy’s (1862-1918) skill as a pianist gained him a spot in the Paris Conservatoire at the age of ten. As a precocious keyboard talent, Debussy would quickly learn to use the piano as a useful tool for his compositional aspirations. Not only would he go on to write one of the most renowned collections of virtuoso piano pieces for piano, the two books of Preludes, but his unique compositional style with its ambiguous tonality and colorful textures would develop into a new genre of classical music known as Impressionism. Although Debussy chose to not identify with artistic impressionism, his compositions shaped what would make the genre recognizable. My project analyzes the first piece of Debussy’s Preludes, known as “Danseuses de Delphes” (Dancers of Delphi), to reveal the stylistic attributes that influence what we recognize as musical impressionism today. As the Preludes were among his last major piano works before his death, all of Debussy’s acquired knowledge and skill influenced the collection. Debussy composed one of the most expansive and creative contributions to the piano repertoire in the 20th century.

The Price of Platinum: Density 21.5

Megan Swick, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, music

This project explores Edgard Varèse’s (1883-1965) musical composition Density 21.5, which was written for virtuoso flautist Georges Barrère, who had recently acquired a new platinum flute. The density of platinum is approximately 21.5, which explains how this piece acquired its unusual title. This piece is atonal, meaning that it isn’t written in any specific key or mode and lacks a tonal center, situating the work as contemporary. In Density 21.5, Varèse explores the concept of instrumental pitch. In addition, he uses interval cycles—creating repeating patterns

that begin and end on the same pitch—and the extensive use of the tritone, which is typically avoided in compositions due to its highly dissonant sound. My project goals are to dig deeper into the history of this piece and to analyze the score itself for its musical features. A significant prior example in music history was Debussy’s *Syrinx* (1913), also for solo flute. I hope to achieve a better understanding both of Varèse’s compositional style and aesthetic inspirations for the piece.

Rachmaninoff: Out of the Darkness

Grant Asklar, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Inspired by Russian composers such as Nikolai Zverev, Alexander Ziloti, and especially Pyotr Ilyich Tchaikovsky, the late Romantic-era composer Serge Rachmaninoff (1873-1943) composed his Cello Sonata, op. 19. The piece was written in 1901 after the composer suffered a serious bout of depression, following the premiere of his unsuccessful Symphony No. 1. Among Rachmaninoff’s many compositions that utilized full orchestra, including piano concertos and the Symphonic Dances, this was his only chamber work for cello and piano. This Cello Sonata has become standard performance repertoire among the world’s great cellists, including the highly acclaimed Mstislav Rostropovich. What drew me to the piece is the transcription for baritone saxophone by Steven Banks, which he premiered with pianist Chen-Shen Fan at the Music Institute of Chicago in 2016. As a saxophonist, I hope to take on this “beast” of a piece in performance myself, hoping to encapsulate Steven Banks’ expression, tone, and control over the instrument in expressing Rachmaninoff’s Russian Romantic idiom. In my analysis, I hope to reveal Rachmaninoff’s historical inspirations and influences, such as the Russian “Mighty Handful,” for this iconic sonata.

Requiem or Requiem Not: Creating An Historically-Informed Performance

Dan Fronckowiak, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Mozart’s Requiem is a work shrouded in mystery. Some of that was by the design of his widow, Constanze, desperate for income after her husband’s untimely death at the age of 36. Some of the mystery comes from the multiple hands involved in its composition. While Mozart’s autograph sketches were later recovered, still more mystery comes from Mozart pupil Franz Süssmayr intentionally making them unavailable after the Requiem was delivered to the unidentified person who commissioned the work. Given the questions that continue to surround the Requiem, how can a contemporary ensemble perform it in a way that pays homage to its contexts of time and place? Further, how can those needs coexist with the needs of contemporary performers and audiences? In researching

Mozart's Requiem, I seek not definitive answers about its evolution and completion; rather, I hope to understand more clearly the mystery-rich way in which it was completed. With that understanding, I provide contexts that will allow contemporary vocalists and instrumentalists, irrespective of skill sets or previous historical knowledge, to develop an artistically fulfilling performance—one that honors its historical contexts—for contemporary audiences.

Rimsky-Korsakov's Tsar Saltan and the Musical Journey of the Double-Named Russian

David Whitaker, Jr., MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

During the nineteenth century, the Russian Romantic compositional scene reached its apex, contributing such major talents as Pyotr Ilyich Tchaikovsky, Mikhail Glinka, and Anton Rubinstein. Opera was an immensely popular artistic import, and its creators were introducing innovative musical elements to pique the interest of new listeners. One composer has proven himself to be worthy of his sobriquet “the master of orchestration”: Nikolay Andreyevich Rimsky-Korsakov (1844-1908). He believed that classical music could be more expressive of specific national styles. One of his greatest and most beloved works, the fairy-tale opera *The Tale of Tsar Saltan*, op. 57, contains the celebrated *The Flight of the Bumblebee*. With exotic instrumentation as part of a well-executed fusion of woodwinds, brass, strings, and percussion, Rimsky-Korsakov proved himself a supremely creative musical innovator. He developed well beyond this experimental phase and forged a unique path in classical composition that had enormous influence into the 20th century. My objective is to demonstrate the artistic *raison d'être* of Rimsky-Korsakov and his musical goals in *Tsar Saltan*. I hope to reveal his phenomenal success as one of the most significant musical composers of the era of Russian Romantic nationalism.

Schubert and the Art of the German Lied

Leonardo Bartholomew, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Franz Schubert (1797-1828) ended his compositional career with the monumental *Liederkreis* [Song Cycle] “*Der Winterreise*” [The Winter Journey], D. 911 (1828). Comprised of twenty-four *Lieder* for solo voice and piano that take nearly 90 minutes to perform, *Winterreise* tells the dramatic story of a despondent young man who sets off on a winter journey to forget the bitter memories of a past romance. The drama correlates with Schubert's untimely passing in 1828 after contracting syphilis. Schubert's mature work narrates its story through both poetic text and melodic invention, giving the listener the feeling of almost being present as it was being created. The individual *Lieder* I

focus on are “*Rückblick*” [Backward Glance], “*Letzte Hoffnung*” [Last Hope], and “*Der Leiermann*” [The Hurdy-Gurdy Man]. These three *Lieder* all show different melodic and rhythmic motives shared equally between singer and pianist. My analysis reveals how Schubert constructed his final song cycle to highlight the dramatic contrasts among the *Lieder* to serve the poetic narrative. Stylistically, Schubert takes the listener through a musical journey that builds a powerful dramatic arc within each *Lied*. My project expresses the brilliance of Schubert's mastery of the genre.

Shrouded Mirror

Liam Glynn, DES350: Wood Design II
Faculty Mentor: Professor Sunhwa Kim, Art & Design

My goal for this project was to change the basic interaction we have with a mirror. I had the idea of building a wooden screen that would interrupt the mirror's reflected image. In this interruption, you end up looking more closely and carefully at the reflection. The screen is constructed in the traditional Japanese woodworking style known as *Kumiko*. The case that holds the mirror was inspired by the American architect Frank Lloyd Wright. The Covid-19 pandemic interrupted the build, and while this was difficult it made completing the project incredibly fulfilling. My slideshow presentation portrays a work that ideally I can show in person in the future. I plan to share with the viewing audience a brief description of the art motifs and inspiration for the project, as well as the build process.

Stravinsky's Rite of Spring: Primitive Village to Concert Hall

Alex Denisco, MUS303: Music History 2
Faculty Mentor: Professor Carolyn Guzski, Music

Igor Stravinsky (1882-1972) is probably best known for his controversial ballet score *Le sacre du printemps* [The Rite of Spring]. The musical world of 1913 was rattled by the ballet's world premiere. No one had heard anything like it before and not all understood what was so amazing about the work. By creating a musical masterpiece that was powerful and raw, Stravinsky fundamentally changed the way the performing arts express and convey emotion, ideas, and stories. Instrumental timbres were used to create a barbaric sound and the choreography by Vaslav Nijinsky was animalistic and brutal. The *Rite of Spring* is now regarded among the first bracing examples of musical Modernism. My analysis of this legendary work shows how Stravinsky drew on traditional rhythms and motifs from northeastern Europe, combined with the concept of taking advantage of individual instrumental timbres, to create a unique groundbreaking composition. One of the work's most idiosyncratic features is the famous bassoon solo that opens the ballet, using an extreme upper register which had not been

exploited by previous composers. In addition, Stravinsky absorbed direct influences from the folk music of his native Russia, and his traditional Lithuanian and Russian folk song quotations are very different from melodic themes typical of the Common Practice era in classical music. My project demonstrates that Stravinsky's artistic experimentation is characterized by the imagined sounds of pagan Russian, bringing its ancient spirit to the modern concert hall.

The Street Life of Trees: An Urban Guide

Jaclyn Chuchanis, Graphic Design

Faculty Mentors: Professor Emerita Carol A. Townsend, Art & Design, Professor Robert J. Warren, Biology and Dr. Susan A. McCartney, Small Business Development Center

The main objective of this project was to enhance awareness of our region's urban ecology. My part in this collaborative real-world experience began with a request for illustrating and designing a publication for Buffalo State's Maud Gordon Holmes Arboretum. The project commenced with a Special Project during spring 2020 and was concluded during a 2020 Undergraduate Summer Research Fellowship. I constructed thirty-four illustrations, for which initial research was done in the Eckert Herbarium. Sketches and on-site photographs were brought into the Adobe Design Suite for manipulation. Along with creating graphs for ecological impact, I designed and laid out sixty-two pages. The result is a professionally printed softcover book, supported by the Friends of the Buffalo State Maud Gordon Holmes Arboretum, entitled "The Street Life of Trees: An Urban Guide."

The Waltz King: Johann Strauss II and the Viennese Waltz

Emma Schutt, MUS303: Music History 2

Faculty Mentor: Professor Carolyn Guzski, Music

The Viennese Waltz is one of the most distinctive compositional genres in music history. Johann Strauss II (1825-1899) should receive credit for its enduring recognition, as he is truly "The Waltz King." The goal of my project is to reveal how Strauss became a master composer of the waltz, why he composed his extensive repertoire of famous waltzes, and what it is that makes this genre of music so meaningful to Vienna and its people. I focus on three of Strauss's most famous Viennese waltzes: *Geschichten aus dem Wienerwald* (Tales of the Vienna Woods), *An Der Schönen Blauen Donau* (The Blue Danube), and *Wiener Blut* (Viennese Blood). In addition, a variety of source commentary highlights Strauss's background and musical influences, and sheds light as to why he composed the way he did. I also discuss the structural form and musical history of the Viennese waltz. I chose this topic because it has a deep sentimental meaning to me. My late grandfather and I used

to bond over listening to the great André Rieu and his Johann Strauss Orchestra perform these wonderful waltzes. Through my research, I really hope to deepen my understanding of this special genre of music.

The Young Mozart and the Violin Concerto

Melanie Bitka, MUS303: Music History 2

Faculty Mentor: Professor Carolyn Guzski, Music

Wolfgang Amadeus Mozart's Violin Concerto no. 3 in G major, K. 216 (1775), composed when he was just eighteen, displays a youthful aesthetic in its bright tone and exuberant solo passagework. I explore specific reasons Mozart composed this work, and discuss his early life with his musical family in order to reveal the sources of his extraordinary musical talent from the age of five. I also investigate his artistic influences and how these were expressed in his works. Mozart's concerto was influenced by Antonio Lucio Vivaldi (1678-1741), who developed the concerto genre during the Baroque period. Vivaldi made the multi-movement concerto popular through his virtuoso performance skills. As a violinist, I have performed Mozart's Concerto no. 3 and it always reminds me of the springtime in its overall musical Affect. It is interesting to contemplate whether Mozart experienced a similarly positive period of his brief life at the time of creating this joyous work.

Business, Fashion & Textile Technology, Hospitality and Tourism

Consciousness is a New Beauty

Ni Sung, FTT451: Senior Project in Fashion and Textile Technology
Faculty Mentor: Professor Ali Eagen, Fashion and Textile Technology

If people ask the most important thing I learned from majoring in Fashion and Textile Technology, I will proudly say addressing the negative impacts of the fashion industry on the planet through sustainability practices. I had no idea how much the fashion industry could impact our environment and social lives. I thought fashion only makes us beautiful, but I was wrong. Being mindful and conscious about what we wear is more beautiful. For my senior collection, I created a collection promoting sustainability and eco-friendly designs. I designed simple silhouettes that can be worn multiple times or mix-and-match with other garment silhouettes. I tried to use minimal fabrics to eliminate fabric wastes and have chosen natural fibers for most of my garment pieces in order to avoid synthetic fibers manufactured with chemicals. The fabrics are expensive, but I invested in them because I know that if fashion brands continue to choose cheaper fabrics and labor and avoid sustainability, nothing will really change. I thrifted some fabrics and am excited to use them for my designs. The most challenging part of this project was making design patterns. My pattern-making class was moved online like many others after the pandemic hit. It wasn't easy to learn this skill virtually, and I relied increasingly on textbooks and virtual tutorials for pattern-making guidelines. I plan to include the journey of this collection and the final garments in my presentation.

Empty Airports: Are Tourism Economies Ready for Take-off?

Emily Pyne, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Throughout the wake of the COVID-19 pandemic, many countries have suffered due to their economic reliance on tourism funds. As a result of the global shutdown and closing of borders, countries in which tourism is the chief income source have taken a direct hit. I focus my research on the effects of airport shutdowns in Aruba, the Bahamas, Maldives, and Belize. Each of these countries rely on tourism as the main source of revenue. I research the economic state of the countries directly before the pandemic compared to the current state, and speak to resorts or

citizens who have been directly affected. My preliminary findings show a stark contrast in pre-pandemic vs. post-pandemic that I believe the final results will confirm.

Eyes on Me: A Collection Inspired by the Creator of the Iconic Playboy Bunny Costume

Jennifer Duarte-Portillo, FTT451: Senior Project in Fashion and Textile Technology
Faculty Mentor: Professor Ali Eagen, Fashion and Textile Technology

The RUNWAY theme for my senior project is History Retailored with an emphasis on black designers. Black designers have shaped the way for fashion just as much as other designers, with much less recognition for their amazing and talented work. After looking into many designers for this collection, one made a connection with me: Zelda Barbour Wynn Valdes, who created the iconic Playboy Bunny costume. This costume was important to the female revolution where women began to reclaim their independence and the power of their sexuality. In many ways, Playboy gave women a new perspective and the ability to choose what made them feel sexy. It gave them a way to show how a woman can love herself and her body. It allowed women to show who they are in their bodies and be appreciated for it. Unfortunately, most people don't know who made this costume that has influenced so much fashion and women. Valdes also created dresses and fashion for singers without proper recognition for her talent. My collection modernizes aspects of her style with WGSN's S/S22 trend of euphoric along with the color palette. Design methods that I use for this collection include paneling and boning, to give them the style in which Zelda Barbour Wynn Valdes made the bunny suit.

Global Warming: How Will It Affect Your Favorite Destination?

Kiara Woodruff, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Global warming is affecting the world around us. The countries we love to visit and depend on for our travel experiences will be taking the biggest hit since travel has become more affordable and carbon emissions have increased. This trend is likely to continue as the demand for travel increases. My research focuses on identifying the names of popular destinations that depend on tourism for economic prosperity. I link the discussion to the issue of global warming to understand how the economy and preservation of landscapes are affected. Currently, studies indicate that tropical islands are at the biggest risk of environmental degradation due to global warming. My project concludes with recommendations for how tourists and

businesses can minimize impacts of global warming. If we want to continue travelling to our favorite destinations, we need to begin making significant changes in carbon emissions. The rising sea levels or damaged infrastructure is a problem everyone should be concerned about. As I advance my goals of becoming a professional in the field, I will pursue information which leads to preservation of these tourist destinations. Hospitality professionals and all citizens are witnesses to the serious effects of global warming over recent years. If we want to save our tourist destinations, we need to be agents of change.

Helpful Experience or Continued Exploitation? Let's Dissect this Topic

Benjamin Dalmeida, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality

Africa is a common destination in the field of cultural tourism. Some may even say that the continent has benefited significantly from the influx of tourists and their cultural experiences. However, I consider the reality of some of the negative aspects of tourism, such as the exploitation of cultural resources and environmental degradation. In my project, I researched both the pros and cons of tourism throughout Africa, while highlighting how some of the cons are greater than they might initially seem. Tourists typically learn cultural basics prior to visiting a destination, but may not always consider another place their home no matter how beautiful it is. My goals are to express the importance of cultural preservation practices, as well as discuss strict regulations that can be set in place to diminish the growing exploitation of African cultures. As a result, we can better focus on a well-rounded experience for tourists visiting Africa.

In Bloom: A Runway Collection

Elizabeth Acevedo, FTT451: Senior Project in Fashion and Textile Technology
Faculty Mentor: Professor Ali Eagen, Fashion and Textile Technology

The intent of my senior collection is to highlight and showcase the talent and passion of black designers who historically have been overlooked in the fashion industry. For far too long, the accomplishments of non-white designers have been pushed to the wayside. And in a modern society that aims to uplift our young women, we often forget about those who have come before us. My biggest inspiration for my collection was Anne Cole Lowe, an African American designer whose work was a favorite among high society matrons from the 1920 to 1960s. Best known for creating Jackie Kennedy's wedding dress, her feminine silhouettes and eye for detail became a staple among high society. My collection, In Bloom, works to modernize Lowe's

designs and silhouettes while introducing them to an entirely new generation of consumers. In the fashion industry, it is important to constantly be moving forward. However, it is also important to reflect on our past, especially our mistakes. With the help of WGSN's womenswear forecast S/S 22: Resourceful, paired with the inspirations from Anne Lowe's work, I hope to take a step towards the future with a hyper-feminine line showcasing the beauty of natural colors. I strongly believe that like a flower, every woman deserves her chance in the sun. Through my collection, I hope to inspire others to look deeper into our industry's history and uplift those who moved mountains for us. To complete this project, I researched sewing to produce a clothing collection based on my inspiration.

Kochajmy Sie Wszyscy (Let's All Love Each Other)

Marcel Kosmider, FTT451: Senior Project in Fashion and Textile Technology
Faculty Mentor: Professor Ali Eagen, Fashion and Textile Technology

I am taking the opportunity to use my senior project for RUNWAY, under the theme of History Retailored, to place a spotlight on the social injustice that has affected millions of people worldwide for generations. We can no longer sit around and watch our friends/family be put down, shoved aside, and be the outcasts of our society. We must be the change that we want see in the world and tailor our future history to a more positive and accepting one. Love comes in all forms and it is unjust for the majority to determine the ways of life for LGBTQ+ minority groups worldwide. We must be thankful to many minorities, who were the first of many who fought along the front line to bring about that change we have today. My collection is inspired by Nicole Zizi Studio and their mission focused on eco-consciousness, sustainability, and innovation in gender-free premium streetwear and accessories. We are all individuals who need to be nurtured and cared for not only by ourselves, but by the world around us. I utilize "Resourceful," a WGSN S/S22 trend in executing the "Kochajmy Si Wszyscy" (Let's All Love Each Other) collection. I focus on the sub-themes of natural fibers and imperfect dye to enhance the collection, while stressing the importance of eco-conscious and sustainable practices in fashion. This collection is intended to send a message about the promotion of acceptance of the LGBTQ+ community by my executing a gender-neutral collection.

La Haine: What Does It Mean to be French?

Julianna Kraft, HON400: All College Honors Colloquium
Faculty Mentor: Professor Jason Grinnell, Philosophy

During race riots in 1990s France, a young Arab man named Abdel was brutally beaten by police and hospitalized. The film *La Haine* [Hatred] (1995) follows three friends--Vinz, Hubert, and Saïd--as the young men grapple with the aftermath of the riots, their own identities as minorities, and the ways in which individuals identify themselves and others within those contexts. *La Haine* explores the complicated relations between race, culture, and class, offering insights that remain relevant to France today. France has spent the past decade confronting a migrant crisis that has spread across Europe; immigration and nationalism were at the forefront of debate during the 2016 French elections; and the question of national identity continues to polarize French politics. I begin by discussing the film's director Mathieu Kassovitz and the genesis of *La Haine*, then break down each of the film's characters and their struggles with identity. I summarize how France has historically dealt with immigration and assimilation, as well as strengths and weaknesses of current French policy. Finally, I compare the real-life effects of these policies on French society with the social climate portrayed by Kassovitz in his film. I conclude with a discussion of the ultimate question: Is France's assimilation policy creating a greater societal divide?

Life Without Tourism in South Africa

Sydney Watters, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Africa is known for its beautiful scenery and wildlife and for me this is a "must go" on my travel "bucket" list. Tourism is a key driver in South Africa's economy. Not only does tourism create many jobs for the host community, but it allows for the sharing of rich African history and culture with travelers from all over the world. Summertime is a popular time of year to visit the country, with people flocking to most beautiful beaches and enjoying outdoor activities. Other reasons people travel to South Africa is for college studies. Students make up a significant percentage of travelers to the country each year. My research focuses on why tourism is important to the African people who make up the host community. I also discuss the most traveled places in South Africa and compare them to destinations that are less popular. Finally, I report on the effect tourism has on the economy and how it changes residents' lives, and document negative impacts on the environment. I am excited to explore the factors that make South Africa such a unique destination.

NFL and Its Influence on College Athletes

Myisha Cowan, Jamaal Huff, Isaiah Hancock and **Devin Diaz**, CWP102: Argumentation and Research
Faculty Mentors: Professor Susan Mary Paige, Academic Success and Professor Jane Sullivan, College Writing Program

Covid-19 has had a profound effect on America, but nowhere more than in professional sports. Professional sport franchises are faced with bringing back their fan base. For college athletes, the physical ability to play a sport at a professional level is not always promised. Serious injuries can happen at any time, and this can affect the recruiting process. In recent years, there has been a trend in the draft for the National Football League (NFL) for college players to leave their team mid-season to prepare for the draft. Some have suggested these college players are just quitting. College athletes believe they need to consider the risks and rewards of playing out the college season before registering for the NFL draft. Another perspective is that college players are looking at the sport from a financial point of view. College athletes are not being paid by the NCAA, and if they suffer serious injury while playing college sports, they will never get the chance to play professionally, in addition to losing their college scholarships. What do the NFL fans think about this issue? Are they sympathetic to the college athlete or do they want to win at any cost? After obtaining IRB approval, we conducted a survey of college students at a D3 four-year urban college campus in upstate New York. We question participants on post-COVID-19 NFL interests regarding (a) college players' path to the NFL; (b) Do fans follow the player or do they follow the team? (c) Do they think college athletes should be paid? and (d) Will they return to their pre-Covid interest in the NFL?

Reproducing History: A Doll's 1850s Calico Dress

Carleen Gabrys, Fashion and Textile Technology
Faculty Mentor: Professor Arlesa Shephard, Fashion and Textile Technology

This research project explores the methods of historical creation of textiles and garments through the recreation of a doll dress for the Buffalo History Museum. While items from history are important links to the past, the unfortunate reality is that they can often be damaged to the point where they can no longer be displayed and their significance cannot be shared with a modern audience. Through reproduction of an item for display, the integrity of the historic item can be presented for viewing, while the original item can be preserved from further damage. This recreation process can also impart important knowledge about the original item that can allow for a greater understanding of the item and its significance. The original dress at the Buffalo

History Museum had received extensive light damage and a new dress was requested so that the doll can be displayed without harming the original garment. The process for the digital recreation of the textile is detailed and compared to historical means of textile production. Comparisons to other garments and prints of a similar style and era are highlighted to analyze the construction of the garment. The procedure for recreating the garment from the textile to the final dress is illustrated and implications are drawn for the uses of recreating historic textiles through digital means.

Revitalize and Reimagine: Modernization of Ann Lowe's Signature Gowns

Jasmine Selapack, FTT451: Senior Project in Fashion and Textile Technology
Faculty Mentor: Professor Ali Eagen, Fashion and Textile Technology

The theme for RUNWAY and my collection is Retailoring History -- not changing it -- showcased by embracing black designers from the past and present who have been overlooked. I focused my collection on designs by Ann Lowe from the 1960's. She had been sewing since she could thread a needle, and often included large flower embellishments on her gowns. I incorporate floral embroidery and chiffon overlays to my lingerie designs to represent the floral accents on Ann Lowe's gowns. Ann Lowe was often known as society's best-kept secret because of her skin color, but is now known for designing Jacqueline Bouvier's wedding dress. The intent of my collection is to bring attention to designers of color who usually go uncredited for their hard work, and to encourage more inclusivity in the fashion industry. WGSN's Spring/Summer 2022 Forecast: Connected relates to the theme by showing how we all have some form of connection which can be used to create a more united world. My collection consists of a variety of chiffon, organza, velvet, and satin fabrics in a variety of pastel colors from the Connected forecast. My presentation includes pictures of collection pieces and my mood board used for inspiration. I discuss the silhouettes and how my collection brings awareness to Ann Lowe's work while maintaining my own design aesthetic.

Slow Fashion: Stitching Together a More Sustainable Future

Keenan McKenley, International Studies
Faculty Mentor: Professor Vida Vanchan, Geography and Planning

Demands for cheap clothing and fast turnaround of supplies have resulted in a drastic cost-cutting approach by companies in the fashion industry. Over the past 25 years, the world fashion industry has become accustomed to cheap, low quality garments manufactured within developing countries upon the principles

of unsustainable, low-cost business practices and working conditions. However, exposure into the world of fast fashion has ignited a global movement in response to the practices set in place by several clothing companies. This is known as "slow fashion." My research examines the slow fashion industry by addressing the efforts made by companies in this industry to produce high-quality, sustainable products and to adhere to environmentally conscious business practices. As fast and slow fashion companies continue to compete for global fashion supremacy, interest has sparked into just how much of an impact these industries have on the economic, environmental, and social livelihoods of developing countries. Evidence from secondary data sheds light on these issues, and it is evident that fast fashion plays a negative role with respect to the environment. Furthermore, there is growing support for the slow fashion industry and companies that aim to provide quality and sustainable products as well as promote social justice and equality.

Venice: The Epicenter of Tourism That Has Had Enough

Kayla Kennedy, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Global travel can be one of life's most exciting experiences to partake in. Travelers should always try to leave the location the same way they found it. This extends beyond tidying up one's hotel room and refraining from littering in the streets. It applies to the everyday challenges that present themselves throughout the European travel scene. I constructed my research study around the effects of tourism in the city of Venice. Often there are circumstances where visitors unfortunately aren't respecting foreign land. Cultural tourism brings together accepted practices of research with visitors' motivations to learn, discover, experience, and consume the cultural attractions/products in a tourism destination. Venice, as one of the most frequently visited tourist destinations, cannot endure the continuous disrespect to its environment any longer. Increasing numbers of tourists, harsh inflation in the cost of everyday necessities, the impact of cruise ships on the environment, and public indecency have created profound negative impacts on the host community. Native Venetians have found themselves relocating to alternate regions as a result of the overflow of tourism. I seek to answer the question: Is it worth the heartache and pain the Venetians and the city must endure in order to continue as the epicenter of cultural tourists' experiences? How long can they wait before change occurs?

**Water Crisis in South Africa:
The Influence on Tourism**

Amanda Szymanski, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and
Tourism

The availability of clean water in South Africa has been an ongoing issue, originating before the post-apartheid era. The clean water shortage has greatly affected the country's prosperity, its citizens' health, and its tourism sector. Tourists in South Africa need to remain very aware and cautious of their water usage, and they typically experience the burden of the water crisis through their lodging accommodations and their trip activities. The shortage has obligated South Africa to take on numerous water conservation and recycling methods that tourists are asked to respect and follow, such as taking less than two-minute showers and catching shower water with a bucket, so water can then be used to flush toilets when needed. The lack of water has also made sanitation and hygiene difficult to achieve; therefore, the country has had limited resources in fighting the Covid-19 pandemic. The country does not have enough water for its citizens to frequently wash their hands, therefore contributing to the increase in Covid-19 cases. The CDC has warned tourists to not travel to South Africa due to its high Covid-19 case levels. I use a collection of peer-reviewed journal articles to obtain my information. My in-depth research explores the water crisis that South Africa faces, the impact that this issue has on tourism in the country, and the courses of action that tourists and the tourism industry can take to conserve water while in South Africa.

Communication and Humanities

The Acceptance of Non-Binary Pronouns

Lily Buck and **Ezra LaForme**, CWP102: Argumentation and Research

Faculty Mentors: Professor Jane Sullivan, College Writing

Program and Professor Susan Mary Paige, Academic Success

Non-binary pronouns have become a part of our modern-day daily vernacular, whether we realize that we are using them or not. Yet many seem to have trouble using and understanding these pronouns. Why is it that so many people find non-binary pronouns difficult to incorporate into their speech, especially when requested to do so by a non-binary individual? The objective of this project was to identify and understand why older generations, in particular, are unable to properly use and fully understand pronouns like “they/them.” The hope is to help bridge the gap in communication. The project began with a literature review to examine the complicated linguistics issues regarding the connection between language and learning. The goal was to ascertain what connections there are to alter learned vocabulary and grammar rules. With prior IRB approval, using a sample of convenience, we interviewed two randomly selected groups of students and faculty at a four-year urban college. We collected data to identify the different strategies used by the participants to pick up the ability to use non-binary pronouns.

Expectations of Romantic Relationships in Society

Paulina Vargas, PHI401: Problems in Philosophy Seminar
Faculty Mentor: Professor John Draeger, Philosophy

This research explores some of the social expectations surrounding romantic love. In particular, society tells us that we should make a long-lasting commitment to our marriage partners and stay monogamous along the way. But does romantic love require a long-lasting commitment? People are more likely to favor monogamy and sexual exclusivity because society has made these expectations part of the social norms for a romantic relationship. When being part of a romantic relationship, many will expect to have love, commitment, and sexual exclusivity. Though sexual exclusivity can have a positive impact on relationships, it should be determined if it is indispensable for romantic love. Neil Delaney offers an account of both romantic love and loving commitment. According to Delaney, romantic love involves the desire to create a new entity (a “we”) that represents a shared union. We should love and be loved for the right reasons. These are related to our shared union. In contrast, a loving commitment is based on an enduring interpersonal commitment that our partner will continue acting on our

behalf. In my research, I use Delaney’s concepts of romantic love and commitment as well as other resources from PHI 401 in order to understand the role that expectations such as a lasting commitment and sexual exclusivity have in a romantic relationship.

Hardwired: An Analysis of Television Advertising and Children

Angelina Miconi, COM450: Communication and Society
Faculty Mentor: Professor Michael Niman, Communication

This project examines the complex relationship between children and television. My research provides insight into the ways television advertising influences the behavior, emotions, interests, values, morals, mental health, and learning processes of children. This study focuses on the United States of America specifically because consumerism plays a central and unique role in its culture. There are many reasons why United States consumer culture is so central to its culture. By analyzing children, who are the seeds of the future, we gain insight about the future thought process of adult consumers. My work focuses on how advertising that targets children through television influences their self-esteem and social position. For example, it details how a child’s understanding of sex and gender are developed through toy commercials. It argues that television advertising and product placement trains children to relate certain brands to their understanding of social classes, and subcultures. Similarly, it explains how these consumerist ideologies are perpetuated by school systems. Finally, my research reveals how advertising culture promotes the values of hedonistic capitalism hidden under a veil of fun, entertainment, and instant gratification. Children’s use of television constructs their understanding of the world around them. The purpose of this research is to reflect on who children are as consumers, and why.

Injustice in the Justice System: Using Ancient Philosophy as a Tool for Criminal Justice Reform

Thomas Carr, Philosophy and Criminal Justice
Faculty Mentor: Professor Leigh Duffy, Philosophy

The United States has the highest incarceration rate in the world. Criminal justice reform – particularly concerning mass incarceration – has been one of the most widely discussed political topics over the past forty years. Our current justice system seems to operate under the philosophy of “you get what you deserve”, which likely plays a large part in driving mass incarceration. Society would be better served to address problems within the criminal justice system if we abandoned this outlook and adopted a theory of justice that is more compatible to Plato’s outlook in his Republic. Plato argues that a just society is one that cares for the well-being of the whole community, as opposed

to any one individual or group. In my view, our criminal justice system ought to ground our reform and legislative initiatives in this notion of justice. By using Plato's model of a just society, we can gain a better understanding of the shortcomings of our criminal justice system, and how we can address failures. I believe that the failures are a result of society, but most specifically the criminal justice system, not being built around the well-being of all citizens. In this paper, I argue for three specific changes to make to our criminal justice system to make it more just in Plato's sense of the word.

The King of Mental Manipulation: Effects of Media on Women's Mental Health

Terra Tonellato, COM450: Communication and Society
Faculty Mentor: Professor Michael Niman, Communication

The goal of this presentation is to provide an overview of adverse effects media has on women's mental health. Media has continuously fueled issues ranging from body image dissatisfaction, sexual assault, depression, anxiety, and antiquated gender roles, causing long term effects on the men and women who are exposed to them. This is a direct result of inaccurate representations of women, including increased sexualization, photoshopping imperfections, and emotionally manipulating women and men into thinking they need such qualities to feel wanted in society. The lack of diversity in advertisements demonstrates the corrupt goals of advertising and media, highlighting how the lack of advertising regulations have allowed the issue of mental manipulation to spiral out of control. Many studies documented in academic journals conclude that the media enforces toxic consumption habits, purposely manipulating women's self-esteem while simultaneously lifting men's expectations of gender privilege to new heights, increasing rape, sexual assault and harassment. The studies call for extreme and immediate change in order to spare future generations from this dangerous misogynistic advertising culture. The information in my presentation is supported by images of past and present ads and visual representations of statistics.

La société du l'Abonnement (The Society of the Subscription)

Alexander J. Hellert, HON400: All College Honors Colloquium
Faculty Mentor: Professor David N. Ben-Merre, English

My presentation uses French Situationist philosopher Guy Debord's concept of "spectacle" to describe an emerging form of Capitalism Without Private Property. The spectacle was defined as "not a collection of images, but a social relation among people, mediated by images." Whilst the Situationists of Debord's time argued authentic social life devolved into accumulating wealth, later just the appearance of wealth, today the system is removing

private ownership entirely. Non-perishable commodities will be owned in common by corporations rather than by their users. This is expressed in ride-sharing services replacing car ownership, the Internet of Things connecting rented appliances together, the end of DVDs or CDs and the rise of streaming services, cloud computing replacing software ownership and so much more. Solutions to this all-encompassing problem are difficult since Debord rightly argues that the system sterilizes and commodifies radical ideas into safe ones that don't challenge power. I further argue that Debord's 1968 rebellious ideology fails to solve the problem of bourgeois dominance but rather entrenches it. Situationist concepts like Detournement (a kind of plagiarism of system approved image used against itself) and Psychogeography (effects of physical environment on mental well-being) themselves are commodified by capitalism just in the way Debord should have predicted they would. I paint a bleak picture of overcoming the spectacle and its accompanied commodity fetishization. I must inform you I don't own a copy of *Société du Spectacle*, instead relying on my Google Play eBook, subject to the whims of Google's terms of service.

Let's Talk It Out: An Argument for Civil Discourse

Teddi Hastreiter, PHI401: Problems In Philosophy Seminar
Faculty Mentor: Professor John Draeger, Philosophy

How do we respond to those with whom we deeply disagree? This presentation explores the moral belief that all human beings are worthy of respect in a disagreement where both individuals have conflicting values. To better conceptualize this idea, I offer the disagreement between Person A and Person B over whether or not doctor assisted suicide is a morally permissible choice for a family member diagnosed with an illness that is painful, debilitating, and without a known cure. Both Person A and Person B have taken time to think about and form an argument in support of their views. Because they've thought through these issues, both individuals should be treated with integrity and respect. Thomas E. Hill argues that because we share the same humanity, we're morally obligated to treat each other with respect. For Amy Gutmann and Dennis Thompson, respect for another's humanity requires treating their argument with a certain amount of seriousness. It requires putting aside individual self-interests, an ability to accept when one is mistaken, and a willingness to revise individual views. Civil discourse is not only a way of talking through these issues and directing better discussions, but a way to show respect for fellow human beings.

Maximum Sociability: Foucault and the Technological Imprisonment of our Future

James Speaker, ENG390: Literary Criticism and Theory
Faculty Mentors: Professor Macy Todd, English, Professor Allison Siehnel, English and Professor Gregg Biglieri, English

The growth of authoritarianism in the eighteenth century had a daunting impact on the psychology of those exposed to it. Philosophers such as Michel Foucault explored this impact, and how it altered the societal structures of the world. Long after Foucault's death, authoritarianism has a new vehicle for its means. While the structures which Foucault criticized still thrive, vast expansions in technology have captivated the psychology of the human race. The growth of the internet has given birth to social media, an idea intended as a platform of expression for the self. However, recent decades have soured the goodwill of social media and allowed the platform to grow into a far more insidious, destructive system of power. Even as Foucault wrote *Discipline and Punish* decades before the founding of Facebook or Twitter, these platforms for expression have mutated into authoritarian systems of control, corruption, and suffering. Foucault's writing is a warning which doesn't stop at criticism of authoritarian systems of government, but one which explores our future. Social media platforms are the new prisons--their authoritarian natures destroying the core concepts of the human experience in exchange for a world of instant gratification and redefined reality. By exploring the literature of Foucault and similar thinkers, we can understand the future which these technological advancements have led us to and the possibility, or lack thereof, that we can alter it.

Race and Gender Portrayal on MTV Reality Shows

Magdalene Manuel, COM450: Communication and Society
Faculty Mentor: Professor Ann Liao, Communication

MTV has been producing reality shows since the early 1990s, and the network continues to create different reality shows today. The purpose of this study was to investigate how cast members were portrayed on MTV reality shows, in terms of their race and gender. Cultivation theory was used to examine how the people on these reality shows were depicted when it comes to race and gender, to the viewers that were watching at home. Cultivation theory helps to relate what's shown on reality television with what's true in the real world. To better understand how different races and genders were portrayed on MTV reality shows, I plan to do a content analysis on five different MTV reality shows—*The Real World*, *The Challenge*, *Are You the One?*, *Jersey Shore*, and *Floribama Shore*. I viewed the first season of each of the shows to record the ways in which the different cast members were depicted. My initial goal was to observe how visible the members

were in terms of their race and gender. Next, I noted how visible races and genders were in individual confessionals/interviews. My viewing observations concluded by predicting how likely cast members were to start fights, both physical and verbal.

Romance Without Sex: Is It Still Romance?

Charlie Rowe, PHI401: Problems in Philosophy Seminar
Faculty Mentor: Professor John Draeger, Philosophy

Can romantic love exist without sex, sexual desire, or even sexual attraction? The average person is inclined to say, "No." If there is no sex, then the romance must be fading. When romance seems to fade, partners often feel like they've done something wrong. This sense of wrongness is directly related to fears that they aren't attractive enough or arousing enough to their partner and often the relationship will fail. This paper explores whether sex is a necessary requirement for a romantic relationship. While the most common accounts of romance are heavily linked to sex as an exclusive activity between partners, there are cases where a romantic relationship is founded in some other exclusive activity. Through Delaney's account of romantic love and loving commitments, we can clarify a definition of romance. Additionally, McKeever's accounts of sexual exclusivity can help to expand the roles that sex has in relation to romance, and why it is not exclusively required for romance. To further elaborate on the concept of romance without sex, we can explore the concept of asexuality. Looking into the accounts of asexuality we can further identify what a strong foundation for a romantic relationship looks like without sex as a necessary condition.

Save our Languages: Cultural Tourism to the Rescue

Florentina Berns, HTR318: Cultural Tourism
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Language defines culture, strengthens the bonds of people between speakers, and provides history and value that shape the identity of places. It is also important to note that language is the centerpiece of a cultural tourist's experience in a foreign country. The diversity of languages still in use to today and those trying to be preserved are irreplaceable. UNESCO states that every two weeks a language becomes extinct. Why? There are over seven thousand languages but only twenty-three account for more than half the world's population. English surpassed Mandarin Chinese with Hindi, Spanish and French. Why are languages disappearing and why does it matter? This qualitative research study examines reasons for language extinction on a global scale and seeks to understand implications for cultural travel experiences. Linguists work tirelessly with communities who are trying to salvage their language. These linguists, after conferences, workshops and

language immersion classes, travel far and wide to distant places to teach across the globe or publish their findings. I will prove that language shapes the identity of a destination and adds value to travelers' experiences. It is my goal with this research to make a case that diversity of languages can be preserved with initiatives undertaken by the global tourism industry. I believe in my heart that cultural identity is worth saving.

Social Media and Technology Addiction

Scott Miller, COM450: Communication and Society
Faculty Mentor: Professor Ann Liao, Communication

Social media and technology addiction is widely prevalent in our world today. Our current generation is almost always glued to some kind of screen to get their news, follow what their friends are doing, or even follow complete strangers. To obtain information on how people are addicted to social media, I conducted a survey to ask questions such as how long participants spend on social media per day and how social media affects their other priorities in life. A literature review will be compiled on the impact of social media and addiction on people. For example, sometimes I procrastinate on homework because I sit on Twitter or YouTube to avoid doing the work. Some preliminary research I have done has concluded that many people are just like me. They use time that they could use doing work, hanging out with friends, or sleeping, as time to search the internet. The goals of my research are to learn about the effects that social media or technology addiction have on individuals and what people can do to fix the problem. I hope this study can help people, such as parents or doctors, teach the new generations why they shouldn't have their eyes on those screens all day.

Computer Information Systems and Engineering Technology

Are Those Ants?

Karanveer Gill, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

This project will be studying how to detect people in images who appear miniscule. Small people can be identified as low as 20 pixels. This project has some inspiration from satellite images. It can almost replicate how a satellite image can detect a person. For example, if a picture was taken from a satellite, the identification of small persons will only be beneficial for investigations. This project will be written by using Python language and Jupyter Notebook will be used as the Integrated Development Environment (IDE). Windows Docker will be utilized to access a COCO annotation. This will be accessed within the Python program, referencing a JSON file. A dataset will be downloaded with help from this COCO annotator. This data annotation will be designed to detect tiny persons. The purpose of the project is to immediately detect persons in a picture that are not in a crowded area. Images will mainly be aerial shots where the people in the image will look tiny in size. There will be an indication that the object, in this case the “tiny-person,” is identified. This project will also attempt to zoom-in the photo, almost to replicate a zoomed-in camera or satellite image. With the identification of tiny people, the object detected will turn out to be human. An objective of this research is to mimic a satellite image or camera identifying potential suspects.

Buffalo Baja Bengals (Baja SAE)

David Figueroa, ENT422: Machine Design II
Faculty Mentor: Professor Jikai Du, Engineering Technology

Baja SAE® (Society of Automotive Engineers), which began in 1976, sponsors annual competitions that simulate real-world engineering design projects and their related challenges. Engineering students are tasked with designing and building an off-road vehicle that will survive the severe punishment of rough terrain. Each team's goal is to design and build a single-seat, all-terrain, sporting vehicle whose structure contains the driver. SUNY-Buffalo State College has been competing in the Baja SAE for over 20 years, finding new concepts to make our new vehicle better each year. This year's competition has currently undergone an alternative format because of Covid-19. This alternative split the competition into two separate competitions: (1) Baja SAE Knowledge Event (completely virtual); and (2) Baja SAE

Validation Event (virtual & in-person). Due to SUNY's Covid-19 policy, we are only taking part in the Knowledge Event, for which we have transformed our vehicle design from a RWD to a 4WD. Our vehicle's 10HP engine powers our Gearbox, which provides speed and torque conversions to the Front and Rear differential to activate all 4 wheels with the support of a Driveshaft. The Driveshaft in between the Gearbox and Front differential has a component known as a Switch-Out, similar to a Transfer case but much lighter. This Switch-Out will let the driver switch from 2WD to 4WD manually.

COSMOS: Computer On-Board Scientific Mobile Observatory System

Aseel Shaibi, Madison Skinner, Daniel Sakona and **Tek Powdyel**, ENT466: Electrical Design II
Faculty Mentors: Professor Ilya Grinberg, Engineering Technology, Professor Jon Battison, Industrial Advisor and Professor Jonathan Rosten, Engineering Technology

The COSMOS (Computer On-board Scientific Mobile Observatory System) project is a small-scale robot system of the Mars Rover used for the University Mars Rover Competition. This competition is the world's premier robotics competition for college students challenging student teams to design and build the next generation of Mars rovers that will one day work alongside astronauts exploring the Red Planet. Our team of 2020-2021 designed and built a rover platform prototype. The NI Multisim 14.2 was utilized to simulate the Speed Controller and Joystick Subsystems as an initial step. Data recorded from instruments measurements include percent duty cycle, rise time, voltage, and current requirements for each component and entire robot system. Utilizing research of scholarly literature and technical documentation, the team designed the robot to be capable of maintaining constant velocity, turning all six wheels in the forward, backward, left, and right directions with user-controlled joysticks, with capabilities to handle severe temperatures. Based on voltage/current requirements, the robot system is set to operate at 12 Volts DC with a capacity of 2 Amp-hour. Subsystems designed by each team member (joystick-controller, motor-driver, power distribution, and parts installations) are combined as one system and are tested out.

Deep Learning API with Python

Salah Zahran, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Deep Learning is a subset of Artificial Intelligence and Machine Learning, a type of technology that can think intelligently similar to humans. The concept involves a deep processing and analyzing of data which leads computers to make the best possible decision based on patterns and implications



in the data analysis. Deep learning takes this concept to the next level by creating a similar structure to neural networks in the human brain and applies this concept to its models. It involves creating artificial neural networks in which there are multiple layers consisting of nodes, each of which contains a small fraction of all the data input. Deep Learning applications are very commonly written in Python, so that is used for this project. Other software used is Django, a back-end framework for Python that is widely used for creating APIs and back-end web applications. This project will create an API with Django and use it to run any Deep Learning models. API (Application Programming Interface) provides users with an interface that serves as a middle ground between users and the backend. They offer versatile ways of interacting with web applications and make it extremely easy for users to interact with back-end apps as well. The project consists of coding an API that can accept Deep Learning models as input and will then run and output the model's results in a convenient and clear way to the user.

Face Recognition and Smile Detection

Devanshi Malaviya, CIS435: Python Programming
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Face recognition in real time is a popular subject of research and a rapidly growing challenge. Emotion recognition by focusing on various parts of the face and speech tones is also an exciting field. In this project, my focus is on face recognition and smile detection. I am planning to build a camera based on a real-time face recognition system that can detect if a person is smiling or not and display a message to that effect. The Python packages used in developing this project are HaarCascade, OpenCV, LBPH, numpy and PIL. The face recognition is done in 3 steps, starting with face detection, then using the LBPH algorithm for identification and verification of facial image. The LBPH algorithm uses a pixel matrix on a grayscale image to give new binary value to each cell and in the end, it produces a new image which represents better characteristics than the original picture. The HaarCascade algorithm used for face and smile detection uses a set of elementary combinations of dark and bright areas by edge, linear and central features. In the future, I plan to expand this project and implement it in video-calling software applications. It will use automatically generated captions, along with face and emotion recognition, and generate a transcript or a summary of a meeting after it ends.

Hand Gestures Sensor

Som Dhital, Jose Rodriguez, Prem Kafley and Dylan Woodling, ENT466: Electrical Design II
Faculty Mentors: Professor Ilya Grinberg, Engineering Technology, Professor Ken Pokigo, Electrical Engineering and Professor Darold Wobschall, Electrical Engineering

This project utilizes two ultrasonic sensors: HCSR04 and an Arduino UNO microcontroller. The two ultrasonic sensors are connected to the Arduino UNO, and from there to the computer. A computer code is sent to the Arduino to interface with the sensors. These sensors detect a gesture by a person's hand and have a reaction on the computer. Such reactions may include adjusting volume controls, or changing slides on Microsoft PowerPoint. Our research may potentially be developed to limit the amount of person-to-surface contact and reduce the spread of viruses. Another purpose for this project may benefit the elderly, or persons with disabilities, who may experience difficulty adjusting volume controls, scrolling on a web browser, or playing/pausing a video. The ultrasonic sensors can only sense distances; therefore, a method has been developed to detect the different gestures in addition to distance to the object.

Industry 4.0/IoT Demo

Karl Dorcelian, Zachariah Mayo, Fakhri Alameri, Elton Mensah-Selby and Ryan Borkowski, ENT466: Electrical Design II
Faculty Mentors: Professor Ilya Grinberg, Engineering Technology, Professor Mike Haake, Kaman Automation and Professor Steve Klein, Kaman Automation

Industry 4.0 and IoT are new strategies that changed and upgraded the way we interact with digital technology throughout the industrial and manufacturing world. The project aims to use an IoT/Industry 4.0 demonstration to launch a pilot study to make an easy and efficient data exchange, provide accurate information through potential manufacturing technologies, solar/wind technology and/or other useful machinery. In this context, Industry 4.0 is also known as the fourth industrial revolution, which integrates industrial practices and traditional manufacturing with the use of modern-day smart technology. IoT (Internet of Things), is a network of physical objects integrating sensors, software, and other advanced technologies that allows data exchange with many other devices and systems over the Internet. The approach being used in the project is to connect Programmable Logic Controller (PLC) and motor drive connected to the Ethernet. The Ethernet acquires data from the PLC and send the data to Blue Open Studio (BOS) and MGuard. Through BOS, reports and motor operation logs, are created based on the data from the PLC acquired through the Ethernet. The MGuard Cloud serves as a highly secured web-based service for instant remote access and transfer of information to Machine Advisor. The result of a successful build with this project is to accurate

data output of a wind-powered generator, solar output data, and/or output data from a hydro-powered generator. Another outcome of the successful project is to monitor electric machines data anywhere in the world via Secure Phoenix Connection Device.

Integration of Microgrids and Nanogrids in Smart Grid

Lara Bannister, Aaron Potter, Zachary Wertz, Michael Forster and Matthew Smith, ENT466:
Electrical Design II
Faculty Mentor: Professor Ilya Grinberg, Engineering Technology

A microgrid is defined as a group of distributed energy resources, including renewable energy resources and energy storage systems, as well as loads that operate locally as a single controllable entity. The goal of microgrid systems is to have the utility feeding one or more microgrids, which may be large buildings such as hospitals or campuses. These microgrids would have power generation and storage capabilities enabling them to go into “island mode.” Island mode refers to when the microgrid is completely independent from the utility grid, this feature is useful for reducing the utility grid’s load during peak hours and in the event of maintenance or a fault on the lines connecting the utility grid to the microgrid. Nanogrids may be connected to the microgrid. The nanogrid operates on a similar principle of being able to self-sustain during the previously mentioned scenarios. In a nanogrid, one customer would have solar panels and be interconnected with other houses in that nanogrid, enabling the home with solar panels to give other homes power once the original home’s demand is met. This microgrid/nanogrid integration system is a small-scale emulation of a real-world scenario, allowing for laboratory testing and data analysis. The end goal of the project is to replicate a practical system in which the utility, micro, and nanogrid will work in conjunction with one another as efficiently as possible.

Person Re-Identification: Tracking the World

Mac Johnson, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Person Re-Identification is the use of multiple videos or camera angles to track individuals over time. Someone walking down the street might be in several camera angles at once, but the task is to combine the videos or snapshots to show it is the same person. One problem with this idea is that pictures can have many different variations that affect the accuracy. The plan is to use multiple training libraries to find if this improves identification. Person Re-Identification is a rising topic in

the Cybersecurity field and holds much potential for progress. PyCharm will be used as the IDE for this program because all the learning processes are stored in libraries in Python code. There are multiple options regarding which learning dataset to use, among them CUHK01, iLIDS-VID, and RPIField. The libraries will train the program with artificial intelligence to track a person and store images of them for future queries. Since most of the time libraries are used individually, there should be an increase in accuracy by combining them. The expectation is to see a clear advantage of training methods when used together and also identify the single most efficient library. The goal is to find a different combination of these training techniques to allow the program’s artificial intelligence to be more accurate and adaptable. The results of this research project will show the differences and benefits of using multiple image libraries.

Quick Browse

Pa Reh, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

The goal of this research project is to create a Google Chrome extension called “Quick Browse,” which will make navigation easier for all users on Chrome to browse web pages in less time. Google Chrome has been phenomenal, and many people prefer Chrome over other web browsers because it is very user-friendly. However, the browser does not have all the best features available, so it is important to take advantage of the Google Chrome Extension tool to create the necessary changes. This is why “Quick Browse” is needed. This problem is important to fix because many users waste countless hours on the browser clicking around webpages. The “Quick Browse” will speed up the process for the user to get to their destination webpage more efficiently. It will allow a user to accomplish more work without having to spend so much time clicking around the browser. The technology involved in this project will be HTML, CSS, JavaScript, Jason, and Photoshop. Photoshop is used to create an image, appropriate for the icon of the extension. HTML and CSS are used to mainly display what is on the browser. JavaScript and Jason will be the code that works behind the scenes of the Extension. The result will save user time by allowing access to the destination webpage with a simpler process that eliminates the need to type in the web address.

A Ruff Day for a Dog Salon: A Way to Collect Data

Alexander Wagner, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

The problem that exists in every company is how to collect and store user data, then keep it safe under a login authenticator. Using Django, Python and SQL, organizations can construct a simple website that allows users to enter, collect, and show data that they've collected. This research project is meant to show how this process may be applicable for small businesses. The project rationale serves the needs of small businesses with limited staff, whose customer information and other data can be lost very easily. Prior research was done to address this problem, but the difficulty was that the application was hosted on a single computer shared by multiple employees. The solution is to launch a website and back-end data storage using Django so the employees can record information with their device of choice. The way this can be done is with Django to set up an IP address that employees can connect to, a form that can be created with Python, and a database that can store the required information. Also, some tools to help download the database in different forms, such as comma separated values and a text document, are used. One can expect an application that runs on a website that is secured with a login client and a means of data collection.

Stovetop Overheat Sensor Project

Christopher Lonczak, Monte Perkins, Michael Adanri and **Kamali Henry**, ENT466: Electrical Design 2
Faculty Mentors: Professor Ilya Grinberg, Engineering Technology, Professor James Heimbürger, Northrop-Grumman and Professor Darold Wobschall, Engineering Technology and ESensors

The Stovetop Overheat Sensor is part of a larger home monitoring system for assisting the elderly. The objective of the project is to monitor the elderly in their everyday home activity. It is known that the elderly population is more susceptible to a variety of significant medical conditions. These medical conditions may include Alzheimer's disease, Huntington's disease, dementia, and depression. The project utilizes three separate sensors working together to monitor the overall status of a cooking area being used. The sensors being used include a volatile organic compound (VOC) sensor, air temperature sensor and infrared sensor. The VOC sensor detects volatile organic compounds which can be the result of burning, the infrared sensor detects heat being radiated by the cooking surface such as a pot or pan, and lastly the air temperature sensor detects the temperature of the air in the vicinity of the stovetop. The project uses the PIC16F18446 microcontroller to control the operation of the three sensors. The microcontroller is used to receive and

process the data retrieved from the sensors and checks them against a set of predetermined parameters to ensure the safe operation of the cooking area. If the data from the sensors reach the predefined parameters, possible or immediate danger will be indicated and the system will then set off an alarm alerting the user of the danger. This project is a subsystem of a larger home monitoring system being developed by ESensor company and is intended to function as one of the main threat detection subsystems.

Text Based Adventure Game

Jovannie Lopez, CIS435: Python Programming
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

This research project will develop a text-based adventure game. The game will be created using Hyper Text Mark-up Language (HTML) scripts combined with programming in Python language. This game design project will include many paths and pictures to accompany different events that occur while playing. The primary goal is to combine the knowledge gained for HTML with Python programming language to put the game on a website on the Buffalo State server. This would take basic HTML and that would allow to focus in on the Python parts for the adventure game to make it expansive and have many different routes. The purpose for conducting this research project is to study the ability to work with Python programming and to see ways that it can be implemented and augmented with other coding languages. Some methods that can be used for developing this project are to research extra connections possible between Python and HTML, and to expand the website to look well-polished through Cascaded Style Sheets (CSS). The game is to be about the player's journey through a labyrinth. The players start out with no knowledge as to why or how they were put into this predicament, but as the game proceeds, players meet other characters in the labyrinth in order to learn about what is going on.

Traffic Light Control with Reinforcement Learning

Devanshi Malaviya, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

The rapid increase in automobiles in the past few years has led to traffic congestions all over the world. This forces drivers to sit idly in their cars wasting time and fuel. Current traffic light control policies are not optimized, which leads to people waiting in their cars for nonexistent traffic and more extended travel time than necessary. In the United States, motorists spend an average of nearly 100 hours in traffic congestions per year. The current research project focuses on reinforcement learning

to optimize traffic flow to reduce travel time of drivers. It can be done by building an environment where every intersection has knowledge about the number of the vehicles and their speed as they approach the intersection. Simulation of Urban Mobility (SUMO) is used to build a traffic simulator. Reinforcement learning works on state and action policies which allow traffic lights to make optimized decisions based on their current state. It will balance the exploration and exploitation to make sure that the model is not overfitting and every lane is given importance according to how busy it is. For every state, it receives a reward if it reduces travel time, and the goal of the model is to collect as many rewards as possible. Therefore, the project will conclude by attempting to obtain the most optimized simulation. The Python packages used in the project are Keras, Tensorflow and OpenAI.

Vehicle Dash Cameras with Artificial Intelligence

Matthew Stranz, CIS494: Research in Computer Information Systems
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

The purpose of this research project is to create a vehicle dash camera that assists the user, police, and insurance company in easy license plate recognition and number retrieval in an event of an accident and/or hit and run. Presently, personal vehicle dash cameras are very limited and only record data. Since accidents are very chaotic, it can be difficult extracting the required information. To implement these specific aspects, the vehicle license plate will be detected by YOLOv4, a real-time object recognition system and machine learning model. Following detection, the number within the license plate will be filtered through OpenCV real-time computer vision and printed with Tesseract OCR optical character recognition engine. Currently, this is a software capability that is only found in government, police, drone, and stationary security cameras. Supporting software for this research will be with Google Colaboratory, Jupyter Notebook, Anaconda (Miniconda for Raspberry Pi), Nvidia CUDA Toolkit 10.1, and Git. Additionally, the hardware that would be needed is a Nvidia GPU, Raspberry Pi 4 Model B, a storage device micro SD card, Arducam day and night vision camera, Raspberry Pi 7" touch screen display, USB to USB Type-C with 15W car charger, and a housing unit that would incorporate the hardware along with a mounting for the windshield or the mirror. The final goal is to have all license plate numbers be enlarged and printed above the license plate, and all detections be saved onto the storage device.

Education

How Can Elementary Schools Reimagine Family Engagement During a Pandemic?

Emily Czarniak, HON400: All College Honors Colloquium
Faculty Mentor: Professor Liza Bair, Elementary Education, Literacy, and Educational Leadership

The most influential people in a child's life are their family and their teachers. When schools and families become partners in the child's schooling, it positively impacts the child's learning. Schools as a whole should make significant efforts to collaborate with families and the surrounding communities. When COVID-19 first hit the United States, many schools and educators had to rethink their everyday operations. This included how to reimagine families' engagement in their child's education. As a future elementary school teacher, it will be beneficial for all stakeholders (students, families, teachers, schools, and the community) to incorporate family collaboration into my classroom - especially in mathematics. For this project, I include information about the importance of family engagement in elementary mathematics and examples of what it looked like before the pandemic. I also include information from various sources, from books, to articles, to information from a local elementary school. Finally, I provide ideas for collaborating with Kindergarten families whose children are engaged in 100% remote mathematics learning. My poster shares ideas for educators and schools looking for imaginative ways to partner with families during this unprecedented time.

Incorporating Mental Health into the English Classroom

Jessica Wier, HON400: All College Honors Colloquium
Faculty Mentor: Professor Pixita del Prado Hill, Elementary Education, Literacy, and Educational Leadership

While mental health is beginning to be addressed in schools, it is still seen as a taboo topic. As a future English teacher, I want to highlight the importance of mental health discussion and services through the use of literature, especially following the pandemic which has influenced the mental health of many adolescents. Many schools have implemented the New York State Social Emotional Learning Standards (SEL) into their classrooms and have seen positive results. To emphasize the importance of mental health in our classrooms, I will be creating a unit plan focusing on the book, "History Is All You Left Me," by Adam Silvera. This novel's main character suffers from Obsessive Compulsive Disorder and anxiety, which is discussed throughout the book. Through this Unit, I will be following the grades 11-12 English Next Generation Learning Standards as well as the corresponding SEL standards. This two-week unit will utilize a concept-based curriculum backward design model (Wiggins

& McTighe, 2005). The students will keep a journal each day as they read, beginning with a Double Entry Journal (Berthoff, 1981) and then transitioning into their own journal to serve as an ongoing assessment, exploring the mental health issues raised by the book. Upon completion of the novel, the students would be expected to self-assess their understanding and reflect on what they have learned. Moving into a summative assessment, they would conduct a project which demonstrates their understanding of the reading, as well as outside information regarding mental health.

A Look at Virtual Fieldwork: Conducting Virtual, Synchronous Reading Groups

Kayden Allen, Childhood Education and Haley Hughes, Exceptional Education
Faculty Mentor: Professor Selenid Gonzalez-Frey, Elementary Education, Literacy, and Educational Leadership

My project discusses the first-hand experience of teacher candidates and their involvement with teaching virtually during the Fall 2020 semester. It explores how students needed to adapt to the currently ever-changing world. Many pros and cons surfaced for both parties. Teacher candidates were able to put their best foot forward and did the best they could to make a memorable and personalized experience for the students. We examine the ways in which teacher candidates, as well as their professors, handled virtual learning environments.

Health and Social Work

An Ancient Solution to a Contemporary Medical Problem: Separating Fact from Fiction

Meghan McCallum, Christopher Morillo and Sarah Rosado, CWP102: Argumentation and Research
Faculty Mentors: Professor Susan Mary Paige, Academic Success and Professor Jane Sullivan, College Writing Program

The current pandemic medical climate is tumultuous, which has overwhelmed doctors and scientists alike and changed the culture of entire countries. This may be the perfect opportunity to combat our contemporary problems with an ancient approach: Eastern medicine. Is now the time for people to recognize the benefits of Eastern medicine? There is a belief that Western medicine is better for acute medical emergencies. But for long-term ailments and illness, might Eastern medicine be a better choice for long-term care? Western medicine's wide acceptance allows for insurance coverage, but negates health care covered options if a patient chooses to follow Eastern medical practices. Is this just a case of Western medicine having better public relations and/or funding supported by large pharmaceutical companies? If people knew the successful outcomes of Eastern medicine, would more people be accepting of those who choose to follow Eastern medical advice? Is the preference for Western medical practice more dependent on financial or medical considerations? With IRB approval, this project seeks to determine the perception of Eastern medicine through a case study of (a) one insurance provider, (b) two medical professionals (MD and OD), and (c) two patients (MD and OD).

Improving Mental Health for Inmates at the Erie County Holding Center

Tania Miah, Social Work
Faculty Mentor: Professor Tonya Myles-Day, Social Work

During the summer of 2020, I did research pertaining to the mental health of inmates at the Erie County Holding Center. ECHC reported numerous inmate deaths due to suicide over the past ten years. I believe the deaths could be prevented with better mental health services for the inmates. Although mental health awareness is on the rise, prisoners are a forgotten population. For my research project, I wanted to find out what the assessment process was like for inmates at the Erie County Holding Center. I also wanted to know what resources are available to inmates while they are at ECHC and resources given to them after their release. The project data was collected through an anonymous survey completed by staff members at the Erie County Holding Center. Ten surveys were given out, however only six were completed due to COVID-19. This is because many deputies were

reassigned to other Erie County building locations to reduce the spread of COVID-19 and for the safety of employees and inmates. The surveys provided me with very useful information and gave me an insight into the processes when dealing with inmates who have mental health disorders at the Erie County Holding Center. I also consulted the book *To My Brother Who Did A Crime* by Barbara Habenstreit, which shared personal stories of inmates during their time in jail, providing me with the raw feelings and needs of inmates while they are incarcerated.

Self-Determination is Related to Cardiorespiratory Fitness but not Body Composition

Ashley Rackley, HEW499: Independent Study
Faculty Mentor: Professor Leah Panek-Shirley, Health, Nutrition, and Dietetics

The purpose of this study is to explore the relationship between factors associated with performance within NCAA Division III male athletes. Factors that alter the athlete's performance are essential for trainers and coaches to understand, so that they can apply these changes to proper training and practice. Performance between pre-season and post-season is expected to improve within these athletes and is influenced by training regimens and competition; however, training regimen off-season may affect preseason body composition and physical fitness and this may vary by sport. Psychosocial behaviors such as motivation may also have an effect on preseason fitness-whether it be positively or negatively. Those who show a higher internal motivation score have increased odds at better performance in preseason training, as well as those who have better self-discipline in reference to their workouts. Collegiate athletes pre-pandemic, pre-season, male soccer and football players, were surveyed about their source of motivation for exercise and completed anthropometric testing (body composition, BMI, and waist-hip ratio) as well as physical fitness testing (muscular strength, muscular endurance, and cardiorespiratory fitness). Increased autonomy and self-determined motivation for exercise was positively associated with greater cardiorespiratory fitness. These Division III male athletes had effects on their performance which were influenced by their internal motivations and other behavioral/psychosocial behaviors which also affected their overall physical fitness. Further research is needed evaluating any differences by gender, sport, and pre-post pandemic.

Mathematics

Baby, Bathwater, and Usually Both: Combatting Fear of Efficiency with Mathematical Models

Mistral Khan-Becerra, AMT495: Applied Mathematics Project

Faculty Mentor: Professor Hongliang Xu, Mathematics

Endeavors in efficiency and production improvements are frequently met with trepidation and fear from the general workforce. It does not help that this culture is sometimes bolstered by internal resistance for change and poor management. In this project, a compromise will be explored on a micro-level that may be applicable to larger systems, with larger workforces. We first identify a simplified set of products, quantify the tasks involved to produce each, and, with the use of multiple simulations, we measure the level of complexity arising from different running orders. From here, we define a model which could aid management in determining how large a crew is needed to run different schedules of product. The machine we discuss, in particular, is a slitter, used to slit flat rolled copper and brass coils. The crew normally consists of four operators; we explore what production schedules would merit those four operators and which could be run with only three, freeing the fourth to work elsewhere, or train on new skills.

Gap Junctions Influencing Cell Volume Dynamics

Brianna Gawronski, AMT495: Applied Mathematics Project
Faculty Mentors: Professor Saziye Bayram, Mathematics and Professor Derek Beahm, Biology

Cell volume dynamics can be influenced by many different factors in a cell, such as the diffusion of osmotically active compounds between the cell and the extracellular environment via transport proteins. Gap junctions are protein complexes made from the interaction of two connexon half-channels, which create a bridge between two cells to connect their cytosolic compartments. In our study, we explore a heterogenous syncytium of two clones of CHO cells connected by gap junctions; one that overexpresses a gene for aquaporin channels and one that overexpresses a gene for a control protein. The aquaporin cells (CHO-AQP) swell much faster than the control cells (CHO-CD81) when perfused with hypotonic media. Under these conditions, excluding ion transport through the plasma membrane and cell stress factors, we propose a simplified mathematical model, describing the volume dynamics between the syncytium, propagated by the connection specifically during the initial ten seconds of exposure to hypotonic media. Our model is derived from the effects of the induced junctional gradient, driven by the non-uniform increase in water concentration between the two cell compartments.

Different cases that have been suggested as the activity are considered and used to estimate and fit data from the relative volumes and concentrations of the coupled cells before the regulated volume decrease begins to occur (tens of minutes after perfusion in hypotonic media).

Mind over Matter: How Substance Abusers View Their Health

Dawn Jones, AMT495: Applied Mathematics Project
Faculty Mentor: Professor Bruce Swan, Mathematics

Drug addiction has been a rampant problem across the United States since the late 1800's. Although some individuals have successfully completed drug rehabilitation programs, some patients found these programs unsatisfactory. According to Vertava Health, this can be frequently attributed to lack of engagement, especially when a patient is admitted unwillingly. Additionally, many rehabilitation programs do not have the necessary resources to provide personalized guidance. By utilizing a regression model, we analyze a dataset based on addict's health from their own point of view. The results from our analyses could advise healthcare professionals on how to narrow treatment options efficiently for patients who abuse a specific substance, in order for them to have a successful recovery.

Predicting the Stock Market Using Sentiment Analysis of Social Media

Brendon Kendall and **Robert DiBenedetto**, AMT495:
Applied Mathematics Project
Faculty Mentor: Professor Joaquin Carbonara, Mathematics

In this project, we gather tweets and other social media comments that mention publicly traded companies. Then we quantify the positive or negative sentiment of each comment using Artificial Intelligence (AI) tools. This AI field of study is usually referred to as Natural Language Processing (NLP). In order to obtain these comments, API accounts were created from Twitter and other companies. The quantified sentiments of the comments will be compared with stock values to determine correlation and other statistical properties. Visualization of the data will be used to further derive properties. News stories like the controversy over GameStop's stock market saga will be explained in the context of our statistical research.

Survival After Burn Injuries

Erinanne Gueli, AMT495: Applied Mathematics Project
Faculty Mentor: Professor Chaitali Ghosh, Mathematics

Burn injuries continue to be one of the leading causes of unintentional death and injury in the United States, and the primary causes are fire-flame, scalds, contact with a hot object, electrical and chemicals. In the United States, around 1.1 million burn injuries require medical attention annually. Approximately 50,000 require hospitalization and approximately 4,500 of those people die. In addition, a large number of people die from burn-related infections every year. Children under the age of 15 are more vulnerable to scald burns, and fire-flame burn risk increases as age increases for the general population. Burn injuries are a major public health concern since many of the survivors sustain serious scarring, and life-long physical and emotional disabilities. Addressing these factors is important to help us understand survival in burn injuries. This project aims to identify the factors that predict the likelihood of survival in a burn center using an observational study of 1000 patients obtained from the National Burn Repository. Potential predictors such as age, gender, race, total burn surface area, burn involved inhalation injury, and flame involved inhalation injury will be considered using standard statistical analysis.

Physical Geography and Sciences

3D Elevation Profile Analysis for Erie County Park Trails

Tev'ye Davis, GEG418: Remote Sensing
Faculty Mentors: Professor Tao Tang, Geography and Planning
and Director Lisa Matthies-Wiza, Erie County Office of
Geographic Information Services

Various government agencies and authorities have implemented health safety measures which include travel restrictions that have curtailed leisure options for Erie county residents. One of the most accessible and low- to no-cost leisure options Erie County residents is visiting local parks. In fact, the Centers for Disease Control and Prevention (CDC) states that visiting local parks is one of the best ways people can stay mentally and physical healthy during the Covid-19 pandemic. Due to the increased usage of Erie County local parks in 2020, the Parks, Recreation and Forestry Department would like to improve the safety and user experience of certain actively used trails. With the democratization of LIDAR datasets and digital elevation models through the New York State GIS clearinghouse, this GIS service project, completed for Erie County, illustrates how local parks safety and user experiences can be improved. We also highlight software limitations and alternatives.

Antibacterial Oligo-Arylureides

Anna Dano, Biology, **Gregory O'Brien**, Biology
and **Victoire-Grace Karambizi**, Biology
Faculty Mentors: Professor Sujit Suwal, Chemistry and
Professor Olga S. Novikova, Biology

Multidrug-resistant bacteria is an emerging global threat that is demanding worldwide attention. There is an urgent need for the innovation of novel therapeutics to replenish conventional antibiotics regimens. Several host defense Anti-Microbial Peptide (AMP) having immunomodulatory properties are currently developed into an antibacterial agent to overcome this biological obstacle. However, such molecules are cytotoxic, susceptible to undergo enzymatic degradation, and expensive. Likewise, several AMP-biomimetics are used in clinical trials to combat potential epidemics due to the possible evolution of new bacterial strains. In our lab, we recently developed a new class arylureido peptoids (ArU) through solid-phase synthesis. We demonstrated that a functionally diverse ArU library can be generated by coupling commercially available primary amines and arylisocyanate using split & pool synthetic approach. We are currently testing the antibacterial properties of some of the ArU molecules against different strains of microbials - Escherichia coli and

Staphylococcus aureus. We explored the size of the ArU-backbone by adding methylamine as the side chain of the oligomers. After successful optimization of the oligomer size, we diversified the sidechain; measured MIC, CFU and able to identify our hit molecule. We found MIC value of the hit molecule is comparable to ampicillin treatment, at least against E.Coli. Currently, we are pursuing in-vitro cytotoxicity assay of the hit molecule against a human cell.

Central Park: Harmful Algal Blooms

Nathalie Rivas, GES460: Environmental Field Methods
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and
Science Education

New York City is home to one of the best known parks in the country, Central Park, with its massive size ranging from the upper west to the lower east side of Manhattan. Central Park is home to numerous habitats, bodies of water, and species. Despite its glory, Central Park is also home to plants that are damaging to the environment. Harmful Algal Blooms (HABs) occur when colonies of algae grow out of control due to changes in water quality. The water becomes overfed by certain nutrients, primarily nitrogen and phosphorus, due to the human activities. They can create dramatic changes such as depletion of oxygen levels, reduction in the amount of sunlight an ecosystem receives, and can even cause negative health effects on humans. In recent years, HABs have also been linked to the death of many pets who drank water in the park. In this study, an analysis of the water quality of two bodies of water in Central Park will be conducted to understand why HABs are suddenly increasing in the environment: the Reservoir and Turtle Pond. The Reservoir used to be a water supply for NYC residents in the 1860s connecting to the Croton Aqueduct, while Turtle Pond resides on an area formerly part of the Aqueduct. Since both bodies of water are treated differently today despite their similar backgrounds, a comparison of their water quality can help isolate what factors may be contributing to an increase in the blooms. Levels of nitrogen, phosphorus, and dissolved oxygen were sampled in both the Reservoir and the Turtle Pond, and their usage and treatment examined to see what causes the blooms to appear, such as the amount of fertilizer used to the surrounding grass. The importance of this study is to understand why HABs are rapidly occurring in Central Park, in order to stop continued negative effects on the environment and human health.

Determining the Source of Toxic Heavy Metals in Closed-System E-Cigarettes

Ashleigh Coggins-Block, Forensic Science

Faculty Mentors: Professor Jinseok Heo, Chemistry, Senior Research Associate Noel Leigh, Roswell Park Comprehensive Cancer Center and Dr. Maciej Goniewicz, Roswell Park Comprehensive Cancer Center

Background: Potential toxicants emitted from electronic nicotine delivery systems (ENDS) include various types of heavy metals, such as lead, nickel, chromium, and cadmium, all of which pose a variety of health risks, including cancer. Previous research has shown these metals do not originate from refill solutions, instead they may be leaching into e-liquids over time from the parts of ENDS devices. Methods: A pre-filled ENDS device from the International Tobacco Control (ITC) 4-country survey was selected to pilot this study based on high levels of lead previously detected in its e-liquid. The device, a Blu Plus cartridge not connected to a battery, was purchased in 2017 from England and was deconstructed into its individual assembly components. Each component was washed and sonicated using methanol, then submerged separately in 10 mL of a blank e-liquid solution. One milliliter samples were taken at time: 0, 2 weeks, 1 month, 3 months, and 6 months and tested for levels of lead, nickel, chromium, and cadmium using atomic absorption spectroscopy. Results: Nickel, chromium, and cadmium were not quantifiable for any timepoint or component. One component, the device's metallic battery connector, was found to be a significant source of lead, which was detected with increasing concentration at each sampling time point. Conclusions: This study has identified a component of ENDS devices that can be a significant source of toxic lead. It also sets the groundwork for more extensive heavy metal contamination studies on a diverse range of ENDS products in the future.

Digging Deeper: Contaminants in Urban Farms

Matthew Rayburg, GES460: Environmental Field Methods
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

The East side of Buffalo, New York is littered with thousands of vacant lots. These vacant lots were not always empty—most if not all at one time had homes and businesses on them. When these were abandoned, buildings were demolished with the waste and rubble often used to fill in the foundation with a small layer of soil being placed on the top. The debris of old construction can often contain harmful heavy metals such as arsenic, cadmium, chromium, lead, mercury, nickel, and zinc. With the recent uptick of urban farm-steading in the region, many of these lots are being purchased and the empty space is being filled with rows of fruits and vegetables. It is likely that some concentrations of

these hidden toxic elements can make it into produce grown on these lots via different pathways and that the use of nitrogen and potassium fertilizers can impact the ability of plants to uptake these heavy metals. Several test locations were selected based on their historic and current use. Sites with known debris and sites that have no history of construction are compared. Soil, potatoes, carrots, beans and lettuce were collected and dried. The collected samples were analyzed using microXRF in order to determine how the load in the plants compares to the levels of the heavy metals in the soil, and to assess the safety of plants grown by the urban farms and determine if any risks are present to those who consume them.

Does Cell Communication Modulate Volume Changes?

Alexandra Bone, BIO495: Independent Project
Faculty Mentor: Professor Derek Beahm, Biology

Cell volume is fundamentally important to normal cell function. Volume changes arise when normal or pathological conditions create an osmotic imbalance across the plasma membrane, resulting in water influx or efflux until the inside of the cell is osmotically matched to the external environment. Knowledge of cell volume regulation has been obtained primarily through studies on isolated single cells. However, most cell types communicate with each other directly through gap junction channels that allow the cells to share small molecules including water, ions, metabolites, and signaling molecules. Gap junctions provide a transport pathway between cells that does not involve the plasma membrane. We are interested in understanding if and how gap junction communication affects the rate and extent of cell volume changes. An important part of the project is to measure volume changes in individual cells within a cell population. Fluorescent stains and confocal microscopy were used to generate 3-dimensional models of cell monolayers before and after exposure to osmotic challenges. Data is presented on the use of nuclear cross-sectional area and cell height as indirect measures of cell volume. We found that cell height changes correlated well with cell shrinking and swelling induced by exposing homogeneous cell populations to hypertonic and hypotonic media, respectively. Additional data will be presented on volume changes of cells in heterogeneous populations before and after the application of gap junction blockers. These data contribute to ongoing efforts to better understand the role of gap junction communication in cell volume dynamics.

Environmental Impacts of Zebra and Quagga Mussels in Lake Erie Central Basin

Gerald Harlach, GES472: Geology Senior Seminar
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

The purpose of this study is to determine whether zebra mussel (*Dreissena polymorpha*) and/or the now dominant quagga mussel (*Dreissena bugensis*) are a major factor contributing to the dead zone in the central basin of Lake Erie. Both zebra and quagga mussels are invasive species that have had harmful effects on the Great Lakes. They are both extraordinary filter feeders. The zebra mussel can filter feed on particulates down to the size of one micron whereas the quagga mussel can filter feed particulates down to the sub-micron level. This reduces the nutrients available for native species. In addition, this has led to many areas of the lake becoming much clearer due to the lack of detritus and other particulates in the water column. Due to the substantially reduced turbidity in these areas, sunlight penetrates much further into the otherwise darker depths, increasing water temperature and leading to enhanced photosynthesis in plant life. This, in turn, leads to algal and seaweed blooms, which pose additional problems, not only for biodiversity of the lake, but for economic, human, commercial and industrial health. The blooms remove oxygen from the water, resulting in dead zones. To study this proposed relationship, dissolved oxygen levels will be determined to establish the parameters of the dead zone, dredge samples will be taken from areas both inside and outside the dead zone to determine the relative abundance of different members of the benthic community, the amount of phosphorus in the water will be determined to see if it can serve as an indicator of mussel abundance and the temperature and turbidity of the water column will be studied.

GIS Analysis of Land Use in Benezette, Pennsylvania: Visualizing Management Conflict

Shakira Jinez, Biology
Faculty Mentor: Professor Tao Tang, Geography and Planning

Geographic Information Systems (GIS) are a valuable tool in conservation both active and passive. The Pennsylvania Game Commission of Benezette, Pennsylvania has utilized GIS tools to maintain and keep detailed records of the unique landscape in which elk and residents live in abnormally close proximity to each other. The unique relationship between wildlife and locals has led Benezette to be a popular tourist destination which, in turn, has increased instances of human-animal conflict. Increased concern within the game commission for the safety of both residents and tourists has opened a need for

further visualization of the game lands which, at times, overlaps residential and tourist areas. In this simulation, various layers of GIS data were obtained via the Pennsylvania Spatial Data Access (PSDA) and manipulated with ERDAS Imagine and ArcGIS to create a categorized map of land use within the Benezette area. The map allows us to visualize the overlap between private residences, tourism hot spots, and the game land. The results highlight areas of interest in which the Pennsylvania Game Commission may revitalize management efforts with the objective of minimizing human-animal conflict. Tourist attractions on private property identified via the simulation open opportunities between land managers and owners to combat concerns from both sides of the spectrum between community and government.

GIS Analysis of Slope Distributions and Future Solar Energy Farms

Jennifer Hanson, GEG428: Environmental Assessment and Planning Applications in GIS
Faculty Mentors: Professor Tao Tang, Geography and Director Lisa Matthies-Wiza, Erie County Office of Geographic Information Services

In conjunction with Erie County's Office of GIS Services, research was conducted to map and analyze slope angles and aspects of the entire county. Through this study, we found the areas of steepest slopes in the county. Then, we took a further step to explore possible locations for future solar farms. The parameters used for determining the best locations of solar farms were: (1) a solar farm would be on a south facing slope in terms of slope aspect; and (2) the slope angles are best to be 5% or less. This work was conducted using a 2-meter spatial resolution digital elevation model (DEM) of Erie County, and various software tools in ESRI-ArcGIS, such as Slope, Aspect, and Reclassify. The highest elevation is found in southern Erie County, with flatter land up north. The steepest slopes were found along hills in the southern county as well. It was also found that there are many potential locations for solar farms across the county, with large areas of land being suitable both in the north and south. Future research is needed with more parameters, such as the number of sunny days and precipitation totals, as solar farms are more effective in sunny regions.

How Does Water Quality in Western New York Affect Amphibians?

Jacob Warden, GES460/472/529: Environmental Field Methods
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

How does water quality in the surrounding areas of Western New York affect amphibians and other types of life that depend on it? Amphibians are the fastest declining species, due to poor

water conditions because of contamination and poor disposal of chemicals or pesticides from farms. Amphibians absorb everything through their skin, so this is why it is important for them to be in an environment free of harsh chemicals. The goal of this project is to focus on testing the water quality in Scajaquada Creek. Scajaquada Creek is a 13-mile stream that starts in Lancaster and travels through Cheektowaga where it has been diverted to flow underground. It reemerges near Delaware Park and it empties into the Niagara River in East Buffalo. It is anticipated that the water quality of the stream will decrease moving into the city and that amphibian populations will be higher upstream of combined sewer overflows and industrial outlets than downstream. To test this, potential stressors will be located, such as combined sewer overflow and regulated discharges. Sampling locations will be chosen along the path of the stream and upstream and downstream where the potentially significant stressors could exist. The water will be tested for ammonia, pesticides and any chemical that has a high part per million. In addition, field counts of the amphibian population of Northern Leopard frogs, Bullfrogs and Green frogs will be taken early in the spring. Doing this will show us their numbers before their offspring are developed. By doing egg counts, looking for the frogs along the banks and listening for seasonal calls as well, we can get a good estimate for these amphibians' individual populations.

Invasive Round Goby (*Neogobius melanostomus*) in Tributary Streams of Eastern Lake Erie

Kyle Glenn, Biology

Faculty Mentor: Professor Christopher Pennuto, Biology

The invasive Round Goby (*Neogobius melanostomus*) alters macroinvertebrate communities in newly colonized environments throughout the Great Lakes region. I revisited four streams which were examined for Round Goby impacts in 2005 by a former graduate student at Buffalo State College, using the same collection techniques at the same time of year. Gobies appear to have expanded their range since the 2005 assessment. Two of the four streams sampled supported Round Goby populations both in 2005 and 2020, whereas one stream which did not have gobies in 2005 currently has a population. Both streams harboring Round Gobies had lower total invertebrate abundance, taxa richness, and taxa diversity than was reported in 2005. A comparison of current streams with and without gobies did not show any consistent differences in the three metrics examined. Collectively, these results indicate Round Goby continue to expand their distribution and streams with gobies present over the last 15 years appear more impacted by this invasive fish.

Magnetic and magnetocaloric properties of $Mn_{1-x}Fe_xNiSi_{1-y}Al_y$ intermetallic alloys

Jeffrey Paryz, Physics

Faculty Mentor: Professor Arjun Pathak, Physics

Materials responding strongly to minor variations of external stimuli such as temperature, pressure, or magnetic field could revolutionize many of the energy technologies, including refrigeration, actuation, and sensing. Magnetocaloric compounds that are constituted of abundant and non-toxic elements are especially appealing to realize the commercialization of magnetic refrigeration technology. During the EURO program, I was involved in synthesis techniques for bulk magnetocaloric materials, focusing on synthesis and obtaining training for materials' characterization with different techniques. We focused on magnetocaloric materials that have phase transitions around room temperature. In this presentation, I discuss synthesis techniques, materials' properties optimization, and characterization. As an example, I present the phase transition, magnetic and magnetocaloric properties of the $Mn_{1-x}Fe_xNiSi_{1-y}Al_y$ compound.

Magnetic and Transport Properties of R_3TiSb_5 ($R=Ce, Pr, Nd$) Compounds

Randall S. Filippone, Electrical Engineering Technology

Faculty Mentor: Professor Arjun Pathak, Physics

Rare-earth (R) intermetallics show a wealth of interesting fundamental physics due to localized 4f electrons. Importantly, the physical behaviors of these compounds can be tailored by controlling either or both chemistry and structure; hence they remain an intriguing subject for materials science and condensed matter physics communities. Here we present magnetic and transport properties of ternary rare-earth transition metal antimonides with the stoichiometry R_3TiSb_5 ($R=Ce, Nd, Pr$). The compounds crystallize in the anti- Hf_5CuSn_3 -type hexagonal structure, space-group $P6_3/mcm$ (hP18). Our magnetic measurements show that the compounds with $R=Ce, Nd$ undergo antiferromagnetic transition below 5K. However, the compound with $R=Pr$ does not show magnetic ordering down to 1.5K. The resistivity for $R=Nd$ was also measured from 2 to 300K at magnetic field up to 5 Tesla. The resistivity shows metallic behavior with a transition around 5K for $R=Nd$, which is consistent with the magnetic measurement. This work has been carried out in collaboration between Buffalo State College, the University at Genova, Italy, and Institut Laue-Langevin, Grenoble, France.

Magnetic, Thermodynamic, and Electrical Transport Properties of Al-Fe-B Based Intermetallic Compounds

Devanshi Malaviya, Computer Information Systems
Faculty Mentor: Professor Arjun Pathak, Physics

Transition metal borides attracted considerable attention to the scientific community due to its potential applications, including a permanent magnet and cooling devices. AlFe₂B₂ is one such material that was initially reported by Jeitschko et al. (*Acta Crystallogr., Sect. B: Struct. Sci.*, 25 (1969) 163). Recently, a large magnetocaloric effect near room temperature (Tan et al. *JACS* 135 (2013) 9553) was reported for the material. The crystal structure of AlFe₂B₂ based compounds adopts orthorhombic (space group Cmmm) with alternating Al monolayers and Fe₂B₂ slabs along the long b axis. Here we present the detailed study of the effect of substitution Fe by other 3d elements and B by p-block elements on magnetic, specific heat, and electrical transport properties of AlFe₂B₂ compound. We observed anomalous electrical transport behavior above and below the ferromagnetic to paramagnetic phase transition and found that transition temperature can be controlled by substitution.

The Potential of GIS to Visualize and Map Sewage Discharge Reports

Alexander Krest, GEG525: Fundamentals of GIS
Faculty Mentor: Professor Tao Tang, Geography and Planning

Combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) are detrimental events that at times release hundreds of millions of gallons of untreated and partially treated sewage per month into WNY waterways. These discharges pose a multi-dimensional threat, impacting local economies, regional ecology, and public health, among other things. Unfortunately, despite a couple highly publicized events, there is still a lack of attention paid to this issue. In 2013, New York State passed Assembly Bill A10585A, more commonly known as the Sewage Pollution Right to Know Act, which requires publicly owned wastewater treatment facilities to report discharges of untreated or partially treated sewage to the DEC. While this legislation is a step in the right direction, the sheer number of incidences, coupled with varied reporting strategies and messy database configuration make the prospects of working with this data quite intimidating, especially for those not accustomed to the field. Looking at sewage discharge reports for Erie County for the month of September 2019, this project aimed to gauge the potential of displaying this data through GIS applications for public, municipal, and scientific consumption. The results of this undertaking produced a map that--while relatively easily understandable when compared to the traditional Excel format in which the data is often presented--was limited in the scope of true representation of sewage discharges. However, the use of GIS

certainly has the potential to aid municipalities and citizens in visualizing regional sewage discharges.

Rapid Solidification for Metal Ribbons

Randall S. Filippone, Electrical Engineering
Technology, Liam Hulsebosch, Physics and Jacob Casey, Physics
Faculty Mentor: Professor Arjun Pathak, Physics

Rapid solidification is a technique to prepare materials with unique microstructure for desired functionality. This technique involves shooting a stream of molten material onto a spinning copper wheel where it solidifies quickly to form a ribbon of metal. In the typical melt-spinning process, about 5 to 10 g of the alloy is placed inside a quartz or sometimes boron nitride crucible depending on the materials melting temperature, and then the crucible is inserted into the circular induction coil. The current with several amps will apply to the coil, which provides enough heat to the sample, and eventually, it melts. To maximize the melting process, samples temperature should rise several degrees above the melting temperature of the alloy of which ribbons to be prepared. When the temperature reaches the desired point, usually above 100 to 150 degrees C above the melting point, molten metallic liquid eject by Air-pressurization through a fine nozzle of quartz/or boron nitride onto a fast rotating copper wheel, which usually rotates at 3000 rpm (in our equipment). Such high speed offers rapid solidification rates several thousand degrees centigrade per second to freeze the atoms of the liquid phase. We are currently installing melt spinner equipment at the physics department and planning to get ready to synthesize metallic samples in near future. Here we present the installation process of the melt spinner, optimization, and importance of this technique for material science research.

Relationship Between Parks and Combined Sewer Overflows Along Cazenovia Creek

Caitlin Ernst, GES460: Environmental Field Methods
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

Buffalo, like many older cities, has a Combined Sewer system, where the rain running into drains along the streets enters shared pipes with the discharge from the residential and industrial sewage system. During heavy rain events, when large amounts of rainwater enter the pipes, the system can be overwhelmed and a mixture of rain and untreated sewage can be discharged directly into nearby bodies of water through Combined Sewer Overflow (CSO) outfalls. According to the Buffalo Sewer Authority (BSA), there are several CSO outfalls along Cazenovia Creek that let out near parks or recreation areas. This could be potentially hazardous, especially for children or pets playing. For this project, water, soil and sediment samples will be taken from several

locations along the creek. Samples will be taken during normal periods as well as after rain/high flow events. Samples will be taken downstream from overflow points at constant intervals, and at points by public areas. Vegetation and wildlife will be observed, and samples will also be taken near area with potentially dying or lacking in vegetation. As many historical readings, reports or samples that may have been taken along the creek as can be located will also be incorporated in this project. In addition, this information will be compared, wherever possible, to the historic Redlining Maps created by agents of the federal government's Home Owners' Loan Corporation between 1935 and 1940 to see if there is any relationship between overflows still not fixed, the amount of discharge and the areas where they are found.

Relationship Between Slag and Soil/Vegetation/Human Health in Grand Island, Niagara Falls

Xavier Rodriguez, GES460/529: Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

Prior research indicates a correlation between the presence of slag and environmental and human health concerns. Slag is defined as radioactive, gravel-like waste and a byproduct of asphalt. According to the EPA, there were over 100 hot spots found in the Niagara County and Grand Island region over the last four decades. However, only recently have excavations and proper disposal of slag at these sites occurred. The EPA reported that excavations of 28,000 tons of radioactive waste in Lewiston, New York have been done, but there are many more sites to clean up. The radioactive material in these excavation sites contain more than 70 times the normal exposure rates and can have lasting effects to life in the surrounding areas. This leads to possible negative consequences to the health of the communities occupying these sites. The other concern is the effect on the vegetation in the surrounding area as exposure to radiation effects all life and according to the EPA, there are no harmless radiation exposures. In order to study the possible effects that slag has on the ecosystem and human health, locations of known disposal sites in Niagara Falls will be evaluated for stressed vegetation/extreme vegetation differences in the soil containing slag. To examine the effects of slag on human health with regards to the exposure of radioactive materials, U.S. census and Department of Health data on cancer rates in this region be mapped.

Structural and Geochemical Documentation of Metamorphic Rocks from Coastal and Inland Maine

Genna Baldassarre, Geology

Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

Rocks exposed in southern inland Maine, located in the Freeport area, were formed over 400 million years ago, and then metamorphosed and deformed from about 400 to 280 million years ago. This was within a more than 15 km-wide zone of continental collisional deformation known as the Norumbega shear zone system (NSZS) during the Acadian through Alleghenian Orogenies (mountain building during continent-continent collisions). Evidence of the tectonic plate collisions in question exists at the grain scale, and can be studied and measured through the use of polarized transmitted-light microscopy (petrography) of thin sections. Thin sections were prepared from specimens carefully selected from a suite of rocks collected in the field in the Freeport area. They were then described and measured extensively, with the main focus of the study on mineral composition related to near areas, and characteristic mineral growths resulting from metamorphism unique to this field area. Compared to other similar rocks from surrounding areas, the rocks I have studied from Freeport have a lesser porphyroblast-composed matrix and a more interlocked quartz and twinned plagioclase matrix. Whereas subsequent deformational events may alter the matrix minerals, these inclusion minerals are preserved and reflect the original matrix at time of growth. Mineral data was collected from thin section creation and analysis. Throughout thin sections there is consistent biotite lineation, confirming deformation during metamorphism and the apparent direction of the sample foliations. All of these data are reconciled to form interpretations of the tectonic history as recorded by the rock itself. The data documented shows that the extensive tectonic history within the Norumbega shear zone system was long-lived as new matrix fabrics formed over old ones progressively.

A Study of Cyclones in Mozambique Applying Remote Sensing

Elizabeth Mahoney, GEG418: Remote Sensing

Faculty Mentor: Professor Tao Tang, Geography and Planning

Mozambique is a poor and rapid economic developing nation on the Eastern Coast of Africa. In the spring of 2019, two massive tropical cyclones made landfall on the coast through the Mozambique Channel. The resulting devastation had catastrophic effects including massive loss of life, infrastructure, and crops, among other humanitarian crises. Using Landsat 8 satellite images obtained from US NASA that were taken before and after the two storms, I processed multiple imagery maps using ERDAS

imagine software to classify the changes of land use before and after the cyclones and to access the disaster and damage to the country. Using the tools and skills in Remote Sensing, my aim is to visually represent the gravity of the crisis that affected and continues to affect Mozambique. Understanding the impacts of these storms on land use, agriculture, GDP, the loss of human life and many other factors including the HDI (United Nations Human Development Index), we can learn what outcomes can be expected as climate change causes more storms of this nature with increasing strength and frequencies. I hope that we can improve United Nations disaster relief and humanitarian aid handling and enhance direct foreign investments through this study.

Synthesis of Fe₄Nb₂O₉ and Mn₄Nb₂O₉ Oxides

Michael Grey, PHY495: Special Project
Faculty Mentor: Professor Ram Rai, Physics

This research project was focused on synthesis of Mn₄Nb₂O₉ and Fe₄Nb₂O₉ oxides, which were successfully synthesized via conventional solid-state reaction. The important step in synthesis of these compounds was to use the argon gas environment during the sintering process. In this presentation, we report detail synthesis processes and characterizations of these two compounds. The x-ray diffraction characterization revealed a single-phase compound with a purity of >99%. The magnetization versus temperature data show an antiferromagnetic transition temperature of 93 K and 110 K for Fe₄Nb₂O₉ and Mn₄Nb₂O₉, respectively. We used one-inch diameter Mn₄Nb₂O₉ target for Magnetron Sputtering to deposit Mn₄Nb₂O₉ thin films on (001) Al₂O₃ (sapphire) and (001) LiNbO₃ single crystal substrates. The x-ray diffraction patterns of Mn₄Nb₂O₉ thin films on LiNbO₃ show a preferentially c-plane oriented thin film. We will also present the optical properties and magnetization data of Mn₄Nb₂O₉ thin films.

What's Below the Surface: A Deeper Look Using Ground Penetrating Radar

Colin Krzystek, HON400: All College Honors Colloquium
Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

Ground penetrating radar (GPR) is a non-invasive technique for finding out what exists in the subsurface. As a GPR antenna is pulled over the surface, radar waves are sent into the ground, interacting with material by reflecting, refracting, and being absorbed, and then return to the antenna. The control computer displays the returned signals as a two-dimensional “radargram” or cross-section of the subsurface. GPR is typically used to locate pipes and conduits in construction related applications, and it is used to detect subsurface layers, rocks, and structures in geological applications. By collecting data along multiple, parallel transects, a 3-dimensional data block can be constructed to give an even better picture of what objects or structures exist in the subsurface. For this research project, we analyzed GPR data that was collected at the Holy Mother of the Rosary Historic Cemetery in Cheektowaga, NY. At that cemetery, there are several sections without grave markers that are believed to include burials. In order to identify locations for future burials, parallel transects of GPR data were collected that could then be processed into 3D data blocks. As the data were analyzed, we determined that many of the seemingly empty areas were actually filled with unmarked graves. Further analysis showed several locations that might not contain a burial, although we cannot say for sure only based on the GPR data. Ultimately, it is up to the cemetery to decide whether they want to place new burials in locations that appear empty.

Psychology and Social Sciences

Age at Death in Males and Females From Infectious Diseases

Jazlyn Harris, ANT418: Seminar in Biological Anthropology
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

In the nineteenth century, the majority of the deaths in New England (predominately in Massachusetts and Rhode Island) was caused by infectious diseases (Noymer & Jarosz, 2008). The percentages of deaths due to infections were very similar in both males and females. I, therefore, investigated if males and females die at a similar age as well. This research was conducted using the archives from Margaret L. Wendt Archive and Resource Center, Forest Lawn Cemetery, Buffalo NY, and I used scans of Death Registers Volume E 1894-1902. I collected age at death data from 50 males and 50 females who died from an infectious cause of death in 1895. The average age at death for males was 30.8 years. The average age at death for females was 34.6 years. As a result, there was a lack of age difference between males and females. There is a clear correlation between the differences in the percentages of death (Noymer & Jarosz, 2008) and the differences in age at death in both males and females.

Altruism or Anarchy: Crime in Disaster Aftermath

Victoria Sample, HON400: All College Honors Colloquium
Faculty Mentor: Professor Clairissa Breen, Criminal Justice

Disaster: a word so solemn and severe, the only imagery it can invoke is that of total ruination- homes destroyed, livelihoods lost; those who were fortunate enough to survive either totally despondent or left shellshocked as they attempt to process on all levels what they just went through. Disaster can come in many forms, ranging from the natural to the manmade, all oftentimes producing the same outcome. In moments such as these, when there is a veritable avalanche of thoughts going through the minds of survivors, wondering as to whether or not they will also suffer the trauma of crime victimization typically is not in the mix. While it would be false to say that crime does not occur after a disaster, the real query here is just how much? Using pre-existing data and literature, this project seeks to examine the correlation between crime rates in disaster aftermath; whether there is a positive correlation (an increase), or a negative correlation (a decrease). Typically the consensus has been that due to a marked increase in prosocial (altruistic) behavior after a disaster, antisocial (criminal) behavior decreases. While literature and data on this subject is still markedly limited, that observation has been predominantly supported by what is available, and thus that is also the overall finding of the project.

Archaeology and Book Layout Design

Emily Cendrowski, Anthropology
Faculty Mentors: Professor Susan Maguire, Anthropology and Professor Lisa Marie Anselmi, Anthropology

During fall 2020, Emily Cendrowski and I received Early Undergraduate Research Opportunity [EURO] awards to design a manuscript layout for an edited volume on New York State Archaeology with Buffalo State professors Susan Maguire, Ph.D. and Lisa Marie Anselmi, Ph.D. Using Adobe Photoshop and InDesign, we worked together to create a template for layouts for each chapter of the book. Specifically, the layout process involved inserting and formatting the final text and images, which will subsequently be reviewed and revised in Adobe Photoshop prior to publication. Through creative problem-solving, it was possible to attempt a variety of possibilities to explore which would be the most visually appealing and professional in appearance. This project gave us both the opportunity to better understand the fields of anthropology and book publishing.

The Association Between Peer Victimization and Physical Perception Self-Concept

Megan Evers, PSY495: Relationships and Social Development Lab
Faculty Mentor: Professor Kimberly Kamper-DeMarco, Psychology

Peer victimization is experienced at high rates among adolescents and can lead to detrimental outcomes (Wilfley, et al., 2007; Nilsson, et al., 2007). Peer victimization consists of physical and relational forms of victimization. Physical victimization is defined as the being on the receiving end of physical aggression (i.e., hitting, kicking) whereas relational victimization is defined as being the victim of relationship manipulation (e.g., exclusion, rumors; Crick et al., 1996). Relational and physical victimization have demonstrated associations with externalizing and internalizing problems (Reijntjes et al., 2010; 2011); little work has examined the role that each form of peer victimization may play in one's self-perception of their physical appearance. Previous research has demonstrated that peer victimization can lead to negative body image. Frisen and colleagues (2009) found that both girls and boys report feeling that they are fat after being victimized, while Adams and Bukowski (2008) found that obese girls who were victimized were more likely to experience increased depression symptoms. These findings suggest there is a clear correlation between peer victimization and how individuals feel about their physical appearance. The current study uses a series of questionnaires administered through Qualtrics to look at the correlation between peer victimization and physical appearance self-concept. To assess this, we will use the Child Social Experience Scale (Crick et al., 1996) and the Harter Self-

Perception Profile (revised; Harter, 2012). We hypothesize that there will be a positive correlation between peer victimization and self-concept of physical appearance. Data collection is current and ongoing.

The Association Between COVID-19 and Peer Victimization

Grace Gallagher, Psychology

Faculty Mentor: Professor Kimberly Kamper-DeMarco, Psychology

Peer victimization is a common experience among adolescents (Crick et al. 1996); however, little research has examined the effect of COVID-19 on experiences of peer victimization. Past research has demonstrated that peer victimization is associated with gender, age, and experiencing violence as a child. Relatedly, COVID-19 has led adolescents to experience a host of negative outcomes such as depression, anxiety, and anger. Given the recent COVID-19 occurrence, little is known about the effects of COVID-19 on social relationships. As such, the current research study is focused on understanding the association of COVID-19 and peer victimization. We will measure peer victimization through the Child Social Experience scale, separating peer victimization into physical victimization (i.e., hitting, biting, pulling hair) and relational victimization (i.e., manipulation, exclusion, rumor spreading) (Crick et al, 1996). COVID-19 will be assessed using the COVID-19 Adolescent Symptoms and Psychological Experiences questionnaire (CAPSE; Ladouceur, 2021). We predict that individuals will still experience peer victimization the COVID-19 pandemic. These results will come from parents and their children between the ages of 12-13. Both parents and teens will complete surveys focused on the adolescent's behavior, experience of COVID-19, and other related study variables. We will analyze the data from these surveys to see the correlation between COVID-19 and peer victimization.

Associations Between Child Abuse, World View, and True Crime

Kenzie Cervo, Psychology

Faculty Mentor: Professor Pamela Schuetze, Psychology

True Crime has become wildly popular genre in all forms of media, but we don't yet know what leads people to engage in these anxiety-provoking stories. Previous work by Vicary and Fraley (2010) found that when you compare women's and men's interests in novels, women hold the majority interest in true crime. True crime is based on or modeled after real events and is a trauma-centered genre that can be reinforcing for people with trauma who already have a negative worldview. The way the brain changed after experiencing trauma has been so significant that DSM-5 criteria has been updated to include "persistent negative beliefs and expectations about oneself and

the world". The high prevalence of true crime and child abuse leaves us asking if child abuse survivors are using this genre to reinforce the negative world view they already hold? This study looks at association between histories of child abuse and having an interest in true crime in adult years. This study will also explore the possibility that world view mediates any association between child maltreatment and interest in true crime. Buffalo State students will complete a questionnaire that asks about the positive and negative experiences they had in their childhoods, their world view, and their media consumption. This presentation will be used to communicate the expected findings of women having a higher interests in true crime than men, and that child abuse experiences and interest in true crime will be positively correlated.

Associations Between Parental Attachment and Academic Achievement and Motivation

Ashley Mendola, PSY499: Independent Study

Faculty Mentor: Professor Pamela Schuetze, Psychology

Literature credits Mary Ainsworth and John Bowlby as the creators and principal researchers of attachment theory. While their research mainly focused on infant and child attachment, e.g. Ainsworth's Strange Situation Procedure, the premise that the lack of a loving environment impedes development is seemingly relevant in other age groups. The transition to college and early adulthood serves as a unique "Strange Situation" in itself, and the manner in which individuals rely on their parent(s) during this stressful time can give insight into their personal parent-child dynamics. The attachment of college-age students to their parent(s) provides a foundation for the student to begin to settle into adulthood and create their own identity. The focus of this study is to determine whether or not an association exists between a college student's parental attachment and their motivation and achievement in academics. Psychology students completed an online questionnaire which gathered basic demographic information and asked questions examining participants' parental relationships, academic achievement, and motivation for school. The parental attachment dimension was measured through the use of the Parental Attachment Questionnaire (PAQ), and the academic motivation dimension was examined with the Academic Motivation Scale (AMS-C 28). Academic achievement was measured by grade point average. Regression analyses will be used to test our hypothesis that, after controlling for relevant demographic covariates, those who are securely attached to their parents will show higher levels of both motivation and achievement in their studies.

Child Abuse: Perception is Reality

Chyla Wilson and **Tyra Ricks-Emanuel**, CWP102:

Argumentation and Research

Faculty Mentors: Professor Jane Sullivan, College

Writing Program and Professor Susan Mary Paige, Academic Success

Child abuse is a well researched subject. The effects of childhood traumas last long into adulthood. Psychologists and psychiatrists spend months studying the effects of childhood abuse linking it to outcomes such as being homeless, incarcerated, unemployed, divorced, and in counseling for a variety of issues including drug and alcohol addiction. Often those abused become abusers themselves. This negative perception is dominant in any conversation about child abuse. But what about the people who have overcome the abuse and have become successful in life? Would a public awareness campaign to change the perceptions about individuals who have been abused from victim to survivor facilitate a positive perspective? Some people can face traumatic and abusive experiences and gain the strength to become role models to others and help them heal from their past abuse. After obtaining IRB approval, we collected data from students at an urban four-year college about their perceptions of individuals who were in abusive situations, using a Likert scale survey to measure these perceptions.

Comparison of Infectious Versus Noninfectious Causes of Death in Children 5 and Under

Autumn Grabowski, ANT418: Seminar in Biological Anthropology

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Until the middle of the 19th century, handwashing by physicians and doctors was not commonly practiced. In Buffalo, New York the method was adopted around the 1880s. The purpose of this research project is to analyze the effects that physicians adopting handwashing practices had on the cause of death in children aged 5 and under in Buffalo. I looked at children 5 and under buried in Forest Lawn Cemetery, local to the area in the years 1865-1866 and 1895, to observe the numerical differences in infectious causes of death. The hypothesis for this study is there will have been fewer children 5 and under dying from infectious causes in 1895 after handwashing became commonplace amongst doctors and physicians, compared to the children 5 and under who died in 1865-1866. This data comes directly from scanned Death Registries volumes B (1865-1875) and E (1894-1902) at the Margaret L. Wendt Archive and Resource Center, Forest Lawn Cemetery, Buffalo. One hundred children were recorded this way. The causes of death were then categorized into infectious, noninfectious, or indeterminate. This study found there was a 12.5% decrease in infectious causes of death in 1895 compared to 1865-66.

The Cycle Of Poverty: What Allows a Person To Break the Cycle

Leonna Morris, **Jahnia Chen**, **John Keen** and **Amed Sylla**, CWP102: Argumentation and Research

Faculty Mentors: Professor Jane Sullivan, College Writing

Program and Professor Susan Mary Paige, Academic Success

For centuries, America has been portrayed as the land of the free inviting those who seek refuge and a better life. But for too many families, America has not been the better life they expected. The idea of bondage has drastically changed from what once was a picture of slaves locked in chains and shackles to the systematic chains of poverty America currently faces. Many people from these low-income communities transition to well-respected figures in society while others remain to struggle in breaking this cycle. Which allows a person to ask “how do you break the cycle of poverty?” Is the answer in higher education? To find the answers, we will look to examine the support services available to students in a SUNY college system, and specifically the success of EOP, to identify how many lower income students (a) use support programs, (b) graduate, (c) continue to graduate programs or find employment in their field, and (d) raise their economic status. With IRB approval, we will assemble demographic data from programs at SUNY Buffalo State College (EOP, NCAN, Say Yes). This will help determine the frequency of (a) use, (b) retention numbers and graduation rates, and (c) prospects after graduation, to recommend the most effective strategies for improving one’s economic standing.

Death Over a Century: Changes in Mortality Among Buffalonian Women (1917-2017)

Amelia Liuzzi, ANT418: Seminar in Biological Anthropology

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

The last one hundred years have seen an unbelievable number of changes for women in Buffalo, including changes in mortality. A century ago, the leading causes of death were predominantly related to infectious diseases, like pneumonia or tuberculosis. Contemporary Buffalonians are more likely to die from “man-made” mortalities, related to behavior, environment, or successfully surviving to old age. This study compares data collected from one hundred female individuals in Forest Lawn’s 1917 death registers with data from the Institute for Health Metrics and Evaluation’s 2017 Global Burden of Disease records, looking for evidence of these trends. This study found that of the five leading causes of death, only cardiovascular disease, neoplasms, and respiratory infections remained in the top five between 1917 and 2017. Of those, only cardiovascular disease maintained its position, accounting for 34% of deaths in 1917 and 33% in 2017, the leading cause of death both years. Respiratory infections, although they managed to remain one of

the leading causes of death, have decreased a dramatic 17%—the most change in any category. On the other hand, chronic respiratory disease, which is often related to smoking, doesn't even appear in the 1917 data, but has rocketed into being one of the leading causes of death by 2017. This talk will discuss the changing mortality trends of the last century, as well as the causal factors behind these changes.

Democratic Backsliding and the New Authoritarianism

Maimouna Samba, International Relations

Faculty Mentor: Professor Patrick McGovern, Political Science and Public Administration

With the rise of authoritarian regimes throughout the world, the growing power of 'illiberal' democracies in Europe, and the advent of the Trump presidency in the United States, there has been a growing interest among scholars with regard to 'democratic backsliding.' Democratic backsliding entails a deterioration of qualities associated with democratic governance within any regime and is best conceived of as a change in a combination of competitive electoral procedures, civil and political liberties, and accountability. The purpose of this research is two-fold: assess the availability of peer-reviewed journal articles through the E.H. Butler Library that address democratic backsliding; and examine a selection of these articles using democratic indices from the University of Gothenburg's V-Dem Project to address how backsliding is occurring in the countries and regions researched in these articles. 'Democratic backsliding' was used as the search term at the Butler Library website and the search was limited to peer-reviewed articles. The V-Dem Indices identify five key areas of democratic contraction: electoral processes; liberal values; civic participation; deliberative practices; and egalitarian norms. The most prominent form of backsliding described in our selection of articles was found primarily in electoral processes, particularly media censorship and the compromising of free and fair elections through government intimidation and electoral violence.

Democratic Interventions and Women-Friendly Peace Agreements

Tai Prescott-Salako, International Relations

Faculty Mentor: Professor Mehwish Sarwari, Political Science and Public Administration

What impact do democratic interventions have on the adoption of peace agreements with gender provisions? Research shows that third-party interveners shape the behavior of armed combatants during conflict, including their commitment to human rights. Moreover, third-party interventions influence the likelihood of conflict termination and one-sided victory. This project seeks to further explore the effects of foreign interventions

by examining their influence on peace processes. Specifically, the study argues that conflicts that receive interventions by democratic governments are more likely to include provisions on gender issues. Democratic states are committed to promoting international human rights norms in the international arena, including gender equality norms. As a result, it is expected that they diffuse their values in the conflict areas in which they are intervening in and influence peace negotiations. This project is divided into three stages. The first stage focuses on collecting data on the presence of gender issues in peace agreements adopted during the period of 1975-1989. While there is currently data available on peace agreements with gender provisions for the post-1990 years, new data is collected for the years prior to 1990. During the second stage of the project, we will build the theoretical framework of the paper. The last stage of the study entails testing the theoretical expectations using quantitative analyses.

Does Fame and Wealth Do More Harm for People Who Acquire it?

Antonio Ferreira, Derrick Cifuentes and Eric Ortiz,

CWP102: Argumentation and Research

Faculty Mentors: Professor Susan Mary Paige, Academic Success and Professor Jane Sullivan, College Writing Program

There is an unequal divide in the United States created by wealth. Research indicates that famous people from poor or middle-class backgrounds who acquire fame and fortune quickly struggle with balancing their newfound prosperity. There is evidence that suggests people with newfound fame and money often have many negative outcomes. Sometimes rookie professional athletes believe their newfound fame and money can act as a shield against punishment. NFL player Aaron Hernandez is one example. Does fame and wealth do more harm for the people who acquire it? We selected professional athletes as an example of this phenomenon. This project will include a comprehensive literature review of statistical data about newfound fame and wealth on the NFL rookie class of 2018. We will evaluate their (a) interpersonal behavior, (b) abuse of their status, (c) financial management, and (d) philanthropy. After the literature review, we will identify five rookies in the 2018 NFL draft to compare their profession path with the overall outcomes of the rookie class of 2018. We are not using the 2020 season because of the complications presented by COVID-19.

Emotional Recall: How Memories Interact With Our Emotions

Justin Boucher and **Nathan Hurtubise**, PSY435: Human Memory
Faculty Mentor: Professor Stephani Foraker, Psychology

Episodic memories are the autobiographical memories of first-hand experiences and events which we encounter throughout our lives. Through this study, we seek to measure the emotional responses that relate to the recall of these episodic memories. Using Qualtrics to survey Buffalo State students, we ask them about negative and positive emotions related to certain memories. Participants will rate common experiences (e.g., high school graduation) along with meaningful experiences they rate as especially negative or positive to them. Participants will also rate their emotions on a positive to negative scale for each memory. Finally, they will be asked about personality traits, which may affect how individuals categorize their experiences. We predict that participants will report emotions consistent with the common experiences and personal experiences, positive or negative. Importantly, we predict that those who self-describe as having sentimental traits should rate themselves as having more extreme emotions accompanying recall. Participants who rate themselves as less optimistic may rate stronger negative emotional responses with negative memories. Data collection is underway and full results will be reported. This study will help to advance our knowledge on how memories can modulate our mood and invoke emotional responses as part of “reliving” episodic memories.

Fact Checking: The Impact on Social Media Users

Lauren Krug, COM 450: Communication and Society
Faculty Mentor: Professor Ann Liao, Communication

Throughout the past four years, social media platforms have begun to place fact checkers on people’s posts. This was very prominent on platforms like Facebook, Twitter, and Instagram in regard to the 2020 presidential election. In the past year, we watched as the former president’s Tweets had “warnings” placed on them. It is interesting to see how the public feels about this new feature or to see if they have even noticed this feature. This paper will help discuss the impact fact checking has had on people. I survey 500 people who use social media platforms to help us understand the impact this feature has had on the platform’s audiences. It will help us to see how a sample of people feel about the use of fact checking on people’s posts, Tweets, or articles. This presentation will discuss fact-checking from the perspectives of the selective processing theory.

I Asked God to Give Me a Sign, He Gave Me Cancer: Astrology in Personality and Media

Jenna Agro, **Noah Pinelli**, **Jaidyn Marini** and **Sabre Lewis**, CWP102: Argumentation and Research
Faculty Mentors: Professor Jane Sullivan, College Writing Program and Professor Susan Mary Paige, Academic Success

Throughout history, astrology (the study of the movements and relative positions of celestial bodies interpreted as having an influence on human affairs and the natural world), as opposed to astronomy, has continued to influence and shape the lives of the human race. From Babylon and Ancient Greece to today, people have used the concept of astrology to help make sense of life. Just how much dominion does this “science” have on the way people plan their futures? From simply looking up horoscopes, to visiting someone who can read a natal chart, to social media feed links relating a person’s social media usage with their signs, astrology seems to have an even greater effect on the way people see their futures than one realizes. Just exactly how much pull does astrology really contain? We intend to study astrology in its many formats and some of the ways it influences the lives of people. After obtaining IRB approval, we use a sample of convenience. Our participants will be students attending college at a public four-year urban campus in Upstate New York. After completing a literature review, the project will survey student participants on a Likert scale to determine (a) how often they seek astrological answers to life questions, (b) how often they act on that advice, (c) the result of acting on astrological advice, and (d) their level of confidence in the direction(s) they get from astrology.

Is the Cocktail Party Effect the Same Over the Short and Long Term?

Simmy Kaur Sandhu, **Umme Salma Amir**, **Sarp Gonenc Samanci** and **Caitlin Carol McMahon**, PSY435: Human Memory
Faculty Mentor: Professor Stephani M. Foraker, Psychology

The “cocktail party effect” is when our selective attention automatically alerts us to particular external stimuli that we were not trying to pay attention to before. This can cause a distraction, making it harder to remember the original thing we were attending to. Our current study focused on the cocktail party effect for short-term and long-term memory. The hypothesis is that the cocktail party effect will have a greater influence on information retention on long-term memory than short-term memory. The study consists of two groups, one measuring short-term memory and the other long-term memory. Participants will be randomly assigned. Participants in the short-term memory group will be given a demographic questionnaire at the beginning of the study. They will then be given a reading comprehension passage while simultaneously listening to audio

in the background. Lastly, they will proceed to immediately fill out questions regarding the passage they just read. Participants in the long-term memory group will first read the same passage as the other group while simultaneously listening to audio in the background. Next, they will complete the demographic questionnaire as well as two other critical thinking questions unrelated to the passage. Lastly, they will answer the questions about the passage they read. We will then compare participants' recall accuracy for the questions about the passage, which should be lower for the long-term memory group because of the intervening material. Data collection is currently in progress and full results will be reported in the presentation.

Mindfulness Meditation Effects on Self-Regulation and Academic Performance

Shane McKnight and **William Roberts**, PSY498: Honors Thesis II

Faculty Mentor: Professor Michael MacLean, Psychology

The effects of mindfulness meditation on college students' self-regulation, academic performance, and well-being were tested using brief, twice-daily, online sessions for four weeks. In addition to using briefer and fewer meditation sessions, the study differed from previous studies in multiple ways, including self-regulation problems being broken down into impulsivity and under control, a mediational model of mindfulness reducing self-regulation problems and improving academic performance being tested, the effects of adding a focus on positive emotions component being tested, and being conducted during a pandemic with nearly all classes held online. Participants were recruited from college classes in exchange for money and possible extra credit. Out of 49 initial participants, 33 completed every aspect of the study. Participants received online meditation training (preferably synchronous, but asynchronous guidance was available as well) twice a day for four weeks, four days per week. Sessions lasted 15 minutes. Participants completed self-report measures before the program started and after its completion. Longitudinal comparisons indicated significant reductions in stress and negative affect and self-regulation problems and significant improvement in academic performance. Initial mediation analyses suggest that the improvement in self-regulation was not the reason for improved academic performance. The effects of adding a meditation component focusing on positive affect were tested and were not significant. Implications regarding the benefits and limitations of brief online mindfulness meditation will be discussed.

A Modern Mask for a Modern Plague: Functional Fashion Against COVID-19

Amelia Liuzzi, ANT418: Seminar in Biological Anthropology
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

This talk discusses the methodology and practicality behind designing a modern plague doctor mask that protects its user against COVID-19. For this project I wanted to create something that was as much a piece of wearable art (and social commentary) as it was a functional item. In order to understand what design elements are important in a functional mask, I looked at studies on the efficiency of personal protective equipment (PPE) in minimizing the spread of disease. First, by using a mask with full-face coverage, accidental or unconscious touch-contact risk is eliminated. This is especially important because, on average, people touch their faces 20 times an hour—almost half the time the touch involves the eyes, nose, or mouth. Face coverage also protects against errant droplets and aerosols in tight quarters—up to 96%. Another factor to consider is fabric selection, which is especially important due to the small size of SARS-CoV-2. In this case, I chose my fabrics based on a study that showed that layered cotton (mechanical filtration) and chiffon (electrostatic filtration) filtered particles smaller than 300nm with 97% efficiency (compared to the N95's 85%). In regard to the aesthetics of the mask, I went with the iconic plague doctor look—modeled on an etching of the plague doctor of Marseilles c. 1721.

Mood Effects Induced by Video With or Without Audio on Problem-Solving Performance

Hannah Hoebener, PSY499: Independent Study
Faculty Mentor: Professor Stephani Foraker, Psychology

The main purpose of the current study is to provide further understanding on how mood affects creative problem-solving. In particular, how mood affects convergent compared to divergent thinking is debated. We compare positive, negative, and neutral mood induced by short video clips (Maffei & Angrilli, 2019) before solving three kinds of creative thinking problems. Research indicates that film clips are powerful in inducing mood states (Fernández-Aguilar et al., 2019). Creative problem-solving performance will be compared through use of the Alternative Uses task (divergent thinking), Remote Associates test (convergent thinking), as well as a practical object insight problem which has not received as much attention for mood effects. The practical object insight problem includes a scene with multiple objects that the participant can use to solve the problem described in the instructions. As a novel approach to induce mood, we used video clips with audio and without audio to compare the strength of mood induction. It is predicted that those in the positive mood group will perform best on all creativity tasks, with neutral mood

in between, and negative mood producing the lowest creativity performance. A second prediction is that videos with audio should produce a stronger mood manipulation and therefore will magnify the effect on problem solving outcomes. Full results of data collection for this study are presented. The findings from this research can be used to increase creativity on an individual and group level in the workplace.

Peer Victimization, Depression and Substance Use across Race during Adolescence

Laquesha Phillips, PSY295: Research Experience in Psychology
Faculty Mentor: Professor Kimberly Kamper-DeMarco, Psychology

The research question studied here is whether race plays a significant role in the association between peer victimization, depression, and substance use in adolescence. Previous research has revealed that race does play a significant role especially for people of color in impoverished neighborhoods (Hong et al., 2018). African Americans within these neighborhoods often have an increased probability of internalizing problems and negative peer interactions, which leads to a higher risk for substance use. African American adolescents are often more likely to experience depression compared to their white counterparts, due to resources not being available to help, as well as different cultural experiences (Bailey et al., 2019; Taylor, 2011). Using an online Qualtrics questionnaire, we assess these variables among 12-13 year olds. Peer victimization will be assessed using the Social Experiences Questionnaire (Crick et al., 1996), depression will be assessed using the CES-D, and our measures of substance use are based on questions by Johnston and colleagues (2012). To analyze this research question, we will use chi-square tests of independence to examine differences in rates of peer victimization, depression and substance use among different races/ethnicities. In addition, we will examine associations between our variables across different races or ethnicities. I predict that there will be higher rates of depression and substance use among African American adolescents, especially for African American adolescents in impoverished neighborhoods.

Person-First vs. Identity-First: Does Language Matter?

Regan Baney, Psychology
Faculty Mentor: Professor Jill Norvilitis, Psychology

Person-first language is used to place the personal identity of the individual before their diagnosis (e.g. Phillip is a person with Autism). Identity-first language promotes uplifting the person and their diagnosis (e.g. Phillip is Autistic). Although there is controversy about which of these is preferred, both have the

common goal of respectfully uplifting the individual. The purpose of this study was to analyze the relationship between awareness of and beliefs about person-first and identity-first language and stigma toward neurodevelopmental disorders among a sample of 48 neurotypical participants. We examined their perspectives on the application of these linguistic tools to people diagnosed with Attention Deficit-Hyperactivity Disorder or Autism Spectrum Disorder via a survey on Amazon's MTurk platform. We found higher stigma levels coincide with a desire to be more respectful with language choices. We found stigma toward those with ADHD is positively correlated with a greater desire to be respectful in language choices ($r=.71, p<.001$), with the same trend being seen with Autistic individuals ($r=.79, p<.001$). We believe this is likely due to a concept we are calling benevolent ableism, similar to benevolent sexism, in which participants see people with these diagnoses as inherently inferior or lower than themselves. However, they also see them as people who need to be protected, hence the desire to be respectful with language.

Press Start to Begin: A Journey Through Video Game Censorship

Johnathan Ciolek, HON400: All College Honors Colloquium
Faculty Mentor: Professor Annemarie Franczyk, Communication

Why is there so much violence in the world? The ancient old theory for this is because of violent video games which in turn make people become violent, especially children. The ideas that video games are corrupting youth has caused people to call for more censorship in games that depict death, nudity, drug use, etc. Is this really a necessity though? The idea of censorship began in 1976 with the release of a game called "Death Race" which struck up a lot of controversy over violence in video games. From then on, other games, such as Mortal Kombat, Grand Theft Auto, Call of Duty, and Wolfenstein II have also received much criticism for their content. By looking at the individual games and the experiences they provide, a more concise perspective that video games, while they may be violent, should not always be censored. Certain video games offer historical context for events and by censoring such games, history is being withheld. In addition, when these video games are released, the sole purpose of the game is not to preach morality. That is what makes video games unique: their willingness to push boundaries and open the audience's eyes to different perspectives they may not have been aware of before. I will be focusing on the characters and messages portrayed by various controversial games to explain why these video games are not as immoral as people see them.

Relationship Between Marital Status and Cause of Death in Males

Sheana Ramcharan, ANT418: Seminar in Biological Anthropology

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

A correlation between marital status and cause of death can reveal a deeper understanding of the effects that losing a life partner has on an individual. The widowhood effect, more often found in males, refers to the premature death of an individual after death of their spouse. Using scans of the Death Register from the Margaret L. Wendt Archives and Resource Center at Forest Lawn Cemetery, I collected causes of death for 102 adult males 20 years or older of each marital status (34 married, 34 unmarried, and 34 widowed) to determine if there was a difference in causes of death based on marital status. The causes of death were grouped into categories based on the type of death/associated organs (heart, brain, lung, kidney, cancer, medical/infectious, other). The most common cause of death for each marital status were married males: heart related (23.5%), unmarried males: lung related (32.4%), and widowed males: heart related (32.4%). These percentages mean that there were not separate causes of death associated with each marital status. The results indicate that there was no definitive correlation between marital status and cause of death in adult males 20 years or older. These results do not support the widowhood effect in which individuals suffer from a decline in immune response and engage in unhealthy behaviors after loss of a spouse leading to premature death. Future studies may indicate a relationship between marital status and cause of death by controlling for age to get a clearer result.

The Role of Community and Race in Understanding Safe Sex Behavior among Sexual Minority Individuals

Taylor Romanyk-O'Brien, Psychology

Faculty Mentor: Professor Kimberly Kamper-DeMarco, Psychology

Understanding risk factors associated with risky sexual behavior among sexual minority individuals is crucial to promote safe behavior (Walker et al., 2015; Rosario et al., 2001). Research has demonstrated that individuals from this population may be more likely to engage in risky sexual behavior when they are less comfortable with their sexual identity. Little research focuses on race and safe sex practices among sexual minorities. One study found that Black individuals, as well as those who have Black partners, engage in safer sex as opposed to those identifying as White or have White sexual partners (Clerkin, Newcomb, & Mustanski, 2011). The goal of the current study was to better understand these correlates of safe sex behavior. A total of 136 participants who identified as gay, lesbian or bisexual were recruited at local colleges and through social media. Participants

completed several questionnaires online, including the Safer Sex Behavior Questionnaire (SSBQ, DiIorio et al., 1992), Internalized Homophobia Scale (IHS, LaPollo et al., 2014), and Psychological Sense of Community (PSOC, Proescholdbell et al., 2006).

Regression analyses examine how community and race were associated with safe sex behavior. Gender, age, sexual identity, and the age at which individuals came out to others were included as covariates. A sense of community was positively associated with safe sexual behavior. In addition, identifying as Black/African American or Multiracial, compared to White/Caucasian were both positively associated with safer sex. Importantly, this study demonstrates the importance of community and race in safe sex behavior among sexual minority individuals.

Small Island Developing States and the Influence of Foreign Direct Investment on Climate Aid Commitments

Elizabeth Rakowski, International Relations

Faculty Mentor: Professor Mehwish Sarwari, Political Science and Public Administration

Does foreign direct investment (FDI) influence climate aid to small island developing states (SIDS)? Small island states such as Fiji have experienced negative consequences as a result of climate change. While SIDS have been vocal in highlighting the detrimental effects of climate change, research shows that action on this issue is needed by both developing and developed states before significant change can occur. Literature shows that developed economies have shown variation in adopting initiatives to address climate change. This paper argues that one mechanism that developing states use to motivate developed economies to respond to climate change is economic interdependence. When smaller, less powerful island states secure FDI from developed economies, they are able to incentivize developed states to provide climate aid. Investors from developed states, such as the United States, remain keen to protect their economic interests in SIDS and are aware of the potential environmental consequences their investments may have. In turn, they provide climate aid in response to these potential concerns. For the reasons stated here, I hypothesize that an increase in foreign direct investment results in an increase in climate aid contributions. Focusing on all SIDS during the period of 1992-2008, a quantitative test is conducted to examine the relationship between U.S. FDI and climate aid commitments. Results show a significant association between U.S. FDI and climate aid, suggesting that the more FDI present in a SID, the more climate aid it receives.

Social Media and COVID-19: A Source to Sex Trafficking

Karla Dobozi, Victoria Florczak, Anthony Kowalski and Justin Anderson, CWP102: Argumentation and Research
Faculty Mentors: Professor Susan Mary Paige, Academic Success and Professor Jane Sullivan, College Writing Program

More people have been forced to stay in their homes for long periods during the COVID-19 pandemic. There is often not much else to do other than using the technology available to us to entertain ourselves. Social media has become a staple in many people's lives; more specifically, to teenagers in the thirteen to nineteen age range. Adult predators troll on social media with fake identities. Reports have identified countless numbers of fake accounts run by predators. With the current pandemic situation, we can assume the use of social media has increased exponentially. It is a well-established belief that social media is often an easy access point for predators preying on teenagers for sex trafficking. The question we intend to explore is: Has the increase in social media usage, because of COVID-19, led to more sex trafficking cases? We focus on how COVID-19 has impacted social media sourced sex trafficking, and use our research to explore whether COVID-19 and the increase in social media correlates with the increase of sex trafficking teenagers. After obtaining IRB approval: (a) we use a sample of convenience of first-year students on an urban four-year college campus to ascertain how many of them are on social media platforms and self-report their possible increase usage; (b) we ask if they have had encounters in which they felt they were in danger or were being groomed; and (c) how they responded to the incident.

Stress Increases Motivation to Work for an Unhealthy Food Item

Emmitt Horvatis, Psychology
Faculty Mentor: Professor Naomi McKay, Psychology

It is well known that stress increases caloric intake. Perhaps because of this, stress tends to be associated with weight gain and obesity. What remains unclear is whether stress actually increases motivation to work for food. We hypothesized that after a mild stressor participants would be more motivated to work towards an unhealthy food item compared to a healthier food item. Participants came into the laboratory, rated their anxiety and hunger and then either went through a stress condition or no stress condition. They were then given the chance to play a slot machine game where half of the participants worked for an unhealthy food item (M&Ms) and half worked for a healthy food item (grapes) or worked for reading time. During the game, participants clicked the mouse to win points that would earn them portions of food. The number of clicks needed to win a food portion increased exponentially. Preliminary results found that

after a stressor, participants in the unhealthy food condition were more motivated to work towards the food rather than reading time. Overall, it seems individuals may be more motivated to work towards unhealthy foods rather than an alternative activity after stress.

Understanding the Effect of COVID-19 on Student Experiences

Steven Swiatek, Ryan Kelly and Emily Walker, PSY488: Teaching Assistantship
Faculty Mentors: Professor Kimberly Kamper-DeMarco, Psychology and Professor Howard M. Reid, Psychology

The Coronavirus (COVID-19) has had a significant impact on numerous populations globally. College students are in a challenging position due to the pandemic as they are facing illness, loss, relocation and economic hardship. Due to the initial quarantine, students had in-person classes and social events canceled, and many left campus dorms (Tasso, Hisli Sahin, & San Roman, 2020). Classes have yet to resume in-person, which may have caused many students to remain at home. These unexpected events are likely to have social and psychological impacts on students. Social support is a major factor that can help minimize the stress caused by the novel challenges of this pandemic. Quarantine, curfews, and social distancing shape social networks and in turn the likely overall impact of the pandemic on an individual (Elmer, Mephram, & Stadtfeld, 2020). More specifically, by looking at the number and quality of these social interactions, it should be possible to determine whether/how they are associated with ratings of social isolation, anxiety, and depression. The objective of the proposed research study is to gain an understanding of how COVID-19 has affected college students in various aspects of their life (e.g., mental wellbeing, relationships, physical activity, learning). This will be accomplished by having college students complete a Qualtrics survey which includes a number of questions assessing different aspects of their lives, and how they have been affected by COVID-19. Correlations will be utilized to examine these relationships.

Video Games May Be Hurting You More Than You Think

Alyssia Schwab, Shane Gelster and Kaitlyn Cottrill, CWP102: Argumentation and Research
Faculty Mentors: Professor Susan Mary Paige, Academic Success and Professor Jane Sullivan, College Writing Program

Today's youth uses video games as a stress reliever without understanding the effects it has on sleep and academic performance. Video games are often used by first-year college students as a way to relieve stress and escape reality from their hectic academic and personal lives. The project will provide evidence about (a) the connection between sleep habits and video game play time; (b) the effects that sleep habits have on daily life,

specifically academic performance; and (c) how to regulate video game play and its effect on sleep schedules and performance. After a comprehensive literature review of peer reviewed articles, we will administer a Likert scale self reporting survey to the participants. The participants will be a sample of convenience of first year students at a four year public urban college in Upstate New York. This study, with prior IRB approval, will analyze the effects that video games have on the sleep habits of participants. They will be asked about (a) hours spent playing video games; (b) sleep patterns; and (c) current grade point average (GPA). A correlational data analysis will be used to determine the connection between video game play, sleep habits, and GPA. The goal will be to identify stopping cues to assist college students in decreasing screen time and improving academic success.

You're Already Addicted: Peer Pressure's Effect On Substance Use

Ashanti Coleman, Misal Khondker and Nydir Tucker,
CWP102: Argumentation and Research
Faculty Mentors: Professor Jane Sullivan, College Writing Program and Professor Susan Mary Paige, Academic Success

Peer pressure plays a daily role in our lives, whether we want it to or not. It can affect the way we think, or act in certain situations. One situation often linked to peer pressure is substance abuse. It is very common for drugs and alcohol to have an effect on college students, and that leads to shattered careers, dreams, failed majors, and addiction. It is also frequently believed that teens and young adults feel the need to partake in substance abuse to fit in with the crowd around them. Additionally, drug addiction is not just a one-person phenomenon, but rather it creates a domino effect on multiple lives. In the past twenty years, we have had substance abuse programs such as Just Say No to Drugs and the Red Ribbon Program. These programs are no longer widely used and youth are left to find their own answers. Should campaigns with strategies to overcome peer pressure be brought back? With prior IRB approval we use a sample of convenience of first-year students at a public four-year urban college campus. We will conduct a survey to determine the connection between peer pressure and substance use. We will be replicating an existing study to determine if peer pressure (a) still plays a significant role in first time substance use, and (b) increases scope of substance experimentation.

The Young Americans: Youth Voting in 21st-Century America

Kyle Gruber, PSC470: Political Science Seminar
Faculty Mentors: Professor Patrick McGovern, Political Science and Public Administration and Professor Mehwish Sawari, Political Science and Public Administration

Since 18-year-olds obtained the right to vote in the United States in 1972, a vast turnout disparity has plagued the younger generation. This disparity has been the focus of extensive research. Studies into U.S. youth voting tend to split into two categories. The first school of thought attributes the turnout gap to youth socialization. The second school of thought focuses on institutional barriers that have been enacted by state legislatures. The focus of this research will be on the institutional barriers. Because of their having fewer resources than their older counterparts, being unfamiliar with the electoral process, and being more geographically mobile, young American voters are susceptible to being disproportionately impacted by institutional barriers to voting. This research examines the impact that state-level registration and voting barriers have on youth civic engagement, utilizing a cross-sectional time-series research design and controlling for state-level factors such as electoral competitiveness and economic status. The research data spans 16 years, collecting turnout and registration data from the 2000, 2004, 2008, 2012, and 2016 U.S. general elections. The research presented here suggests that youth registration and turnout percentages have been disproportionately impacted by registration and voting barriers that obstruct youth access to the ballot box.

Youth Activism in the Caribbean: Then and Now

Aniyah Williams, Health and Wellness

Faculty Mentor: Professor Marcus Watson, Africana Studies

When we think of 1960's America, the Civil Rights Movement is most likely to cross one's mind. But unknown to many is that there was a Black Power Movement as well. Even fewer people are aware that this powerful movement emerged in the Caribbean, where struggling independent nations identified with racial inequalities in the United States. Thus, my research expands coverage of the Black Power Movement to include Caribbean people and their contribution. Focusing specifically on Trinidad and Tobago during the Black Power era, this study asks how the movement's lasting legacy continues to be relevant today for social change and in what ways today's youth are mirroring their predecessors' efforts to enact change. Drawing on interviews with eight members of prominent youth organizations, as well as secondary literature to extract background information, I find historical parallels between Trinidad's present generation of youth activists and those from the 1970's Black Power era. For example, youth in Trinidad are currently gravitating toward artistic activism, specifically the use of spoken word. Over the course of one exhibition slam, you are likely to hear verses that address topics such as police brutality, gender-based violence, racial justice, and climate change. Similarly, youth activists from the 1970s used Calypso music to protest inequalities inflicted upon them and directly address politicians on these social injustices. My findings indicate a range of strategies and ideals that can be globally implemented in fighting social injustices and unfair biases. This research was presented during the Black History Week programming of the Africana Studies Interdisciplinary Unit in February 2021.

