Abstracts
2022 SUNY Undergraduate Research Conference (SURC)

Buffalo State College
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Oral Presentations–Morning

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Thomas-Fermi Statistical Quark Model in Investigation of the stability of Dodecaquarks

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Morning A1, SAMC 151, April 23, 2022, 9:30 AM - 10:30 AM

Thomas Fermi statistical quark model has been previously used to study the family stability of baryons and mesons. In this project we extend them to form the combination of both baryonic and mesonic particles and investigate the stability of dodecaquark. We imagine the spherically symmetric cloud of multiquarks at zero kelvin and let them interact through color and calculate system energies. Binding energy is compared over the family of multiquarks to observe if such exotic particles are likely to exist.

A sediment record from a kettle bog on the Lake Escarpment Moraine, western New York

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Morning A1, SAMC 151, April 23, 2022, 9:30 AM - 10:30 AM

The Lake Escarpment Moraine is a recessional moraine in western New York (WNY) that formed as the Laurentide Ice Sheet (LIS) retreated from its Last Glacial Maximum position. There are few direct constraints on the timing of formation of this moraine, but correlation with other features suggests an age of ~16.9 ka. Recent work has hypothesized that a major readvance of the LIS overran this moraine from ~13 – 13.3 cal kyr BP. Here, we address this by analyzing a sediment record from a kettle bog on the Lake Escarpment Moraine. First, we collected a 6.8-m-long core from Little Protection Bog (42.621012, -78.463551) using a Livingstone piston corer to extract the post-glacial sediments, and a Geoprobe percussion corer to extend our record to the stiff, basal minerogenic sediments. We created a radiocarbon-based age-depth model using eight macrofossils. In addition, we measured loss-on-ignition and magnetic susceptibility to characterize the depositional environment. Finally, we calculated bulk density in the hypothesized interval of re-advance to look for signs of possible over-compaction from glacial overriding. The Geoprobe collected laminated sands and gravel. The Livingstone cores show a transition from wet gray clay to gray gyttja. Above the gray gyttja is crudely laminated brown/red gyttja, which underlies fibrous peat. The base of the brown gyttja is ~13.8 cal kyr BP, however, there are inorganic lacustrine sediments beneath this lowest date; our age-model estimates lacustrine sedimentation began ~15.4 cal kyr BP. There is a 40% increase in organic matter around 13.8 cal kyr BP, which occurs during the Allerød period. The organic content continues to rise slowly until 10.8 cal kyr BP where it reaches 80%. The slow rise may be attributed to the cold Younger Dryas. Our data suggest that the glacier retreated prior to 13.8 cal kyr BP and does not support a re-advance from 13 – 13.3 cal kyr BP. There is continuous deposition of lacustrine sediments and no over-compaction of the sediment through the hypothesized glacial overriding interval. The contact between lacustrine silt and fibrous peat dates 7.6 cal kyr BP, marking the time when the lake likely filled with sediment and lateral encroachment of vegetation around the perimeter shifted the lake to a bog.

An Assessment of Taurine as a Nootropic in Aged Male Rats in The Attention Set-Shift Test

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Morning A1, SAMC 151, April 23, 2022, 9:30 AM - 10:30 AM

The global population is continuing to age more than ever before, while at the same time increasing the rates of age-related cognitive dementias and associated neurodegenerative disorders. This situation has directed researchers to examine the potential for cognitive enhancing drugs to ameliorate or forestall the naturally occurring age-dependent decline in cognitive functions that accompanying aging. The present study examined in aged male rats (i.e., 1-year of age) that were randomly assigned to either a Control water of 0.05% Taurine water (i.e., for 1-month) prior to being subjected to the Attention Set-Shift Test (ASST; a very sensitive test for cognitive functions of the frontal lobes, flexibility, and evaluation of perseverative behaviors). The Control rats unfortunately with age could not form the necessary simple and complex discriminations to complete the ASST and failed the test. Interestingly, the age-matched Control+Taurine rats were able to complete the ASST and did so at rates comparable to younger (i.e., 60 day old) rats. Then as an additional proof of concept, the Control rats that failed the test, half remained on the same treatment, whereas the other half were then switched to 0.05% Taurine water for 1-month. Another month later, the rats were re-tested and again the Control+Taurine rats were able to complete the ASST, but the Control rats could not. This study offers a first report of Taurine clearly serving as a nootropic (i.e., cognitive enhancing drug) in an aging model. It is thought that since aging reduces the level of GABA (i.e., the main inhibitory neurotransmitter in the brain), that taurine may serve to compensate and replenish levels of this neurotransmission which could explain the cognitive improvements in this animal model of aging. This work shows that taurine may prove to be an effective nootropic to be prescribed in aging populations to preserve cognitive functions in the elderly.

Diversity and Distribution of Cyanobacterial Inteins

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Morning A1, SAMC 151, April 23, 2022, 9:30 AM - 10:30 AM

Inteins are intervening sequences that excise themselves from a precursor protein post-translationally and splice the flanking polypeptides, exteins, to produce a mature protein. This reaction, called protein splicing, requires no metabolic energy and no cofactors. Although inteins are most frequently found as a contiguous domain, some exist in a naturally split form. In this case, the two fragments are expressed as separate polypeptides and must associate before splicing takes place, termed protein trans-splicing. Inteins are broadly distributed in single-celled organisms across all domains of life. Among bacteria, cyanobacterial species are rife with inteins, with almost every sequenced genome carrying at least one intein, and some carrying up to sixteen. Cyanobacteria play a vital environmental role as photosynthesizers and diazotrophs, and are thought to have been responsible for the Great Oxidation Event 2.4 billion years ago. Cyanobacteria carry a naturally split intein that interrupts the DnaE protein, the main catalytic subunit of bacterial replicative polymerase III. Although the DnaE intein is a valuable tool for protein tagging, purification, and synthesis, little is known about evolutionary history of the DnaE inteins or their biological roles in the host organisms. In this study, we used a bioinformatic approach to mine inteins from cyanobacterial genomes and assess their diversity and distribution, and to derive insights about the evolutionary history of the DnaE intein. In total, we found nearly 500 inteins in 361 cyanobacterial species. The majority of inteins were

inserted in replisome proteins, with DnaE inteins making up over half of all inteins found. We then examined DnaE inteins' genetic loci for insights about the history of this split intein. Our preliminary data indicate that the common ancestor of the split DnaE-intein was a contiguous intein carrying a homing endonuclease. After the 'splitting' event, two parts of the gene drifted apart and can be found as many as 6.6 Mbp apart on the chromosome. This suggests a potential regulatory role for the split DnaE intein, as the two parts of the protein precursor must find each other for successful trans-splicing and formation of a functional protein.

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Capital Punishment: A Racially Biased Institution

Stephanie Aubin[1]
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Morning B1, SAMC 170, April 23, 2022, 9:30 AM - 10:30 AM

The American capital punishment system is arbitrarily biased against individuals of color and therefore unconstitutional, and because of this, the death penalty needs to be abolished at the federal level in the United States. Almost all studies conducted on capital punishment and race declare three vital arguments: 1) A capital defendant is more likely to be subject to execution if they are Black in comparison to any other race. 2) A capital defendant is more likely to escape a capital sentence if that person murdered a Black individual than if they had murdered a member of any other race. 3) Implicit biases against Blacks exist almost exclusively when a death sentence is a possible punishment. With this in mind, it becomes clear to see that the American capital punishment system is increasingly partial against Blacks and should not continue to exist under these conditions. Numerous states within the last two decades have abolished capital punishment for various reasons that highlight the necessity for abolition federally. Specifically, the states of New Hampshire and Connecticut provide key insights into the ways in which federal abolition would be possible, as New Hampshire's quest for abolition was a lengthy battle between state politicians and in Connecticut, public opinion and the outspoken families of victims were the catalyst in bringing about an end to capital punishment. Abolition at the federal level would be an incredibly difficult feat, but under the right political circumstances and with support from the general public, an end to the capital punishment system in America is not only possible, but inevitable.

George Berkeley's Refutation of the Indirect Realist Theory of Perception

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Morning B1, SAMC 170, April 23, 2022, 9:30 AM - 10:30 AM

In this essay, I contend that George Berkeley demonstrates that the indirect realist theory of perception is false. Indirect realism is the theory of perception according to which veridical perception is an immediate perceptual awareness of sense data, which are mind-dependent phenomenal qualities with representative content that gives us mediate perceptual access to material objects. I contend that Berkeley's argument against the indirect realist theory of perception should be formulated as a reductio ad absurdum; even granting that the indirect realist theory of perception is true, Berkeley argues, material objects can never be perceived. Hence, the indirect realist theory of perception is false.

I contend that to do so Berkeley argues that sense perception falls under two branches: immediate, and mediate. Immediate perception is what is perceived and "would have been perceived in case that same sense had then been first conferred on us" (Dialogues, 153). As he sees it, mediate perception is broadly considered as either 1) what is suggested to our mind upon having an immediate perception, or 2) what we infer as the cause of our immediate perceptions. Berkeley thinks 2) is not a viable candidate for what sense perception can consist of, since an inference we make by reason is not and so cannot properly be termed a perception at all. Berkeley thinks 1) is a viable candidate for what sense perception can consist of, but that 1) is not a viable candidate for how material objects can be perceived on the indirect realist account of perception. That is because on the indirect realist account of perception, any notion of 'material objects' will either automatically preclude its perceptibility, or else the notion will contradict the indirect realist's other tenets. Hence, Berkeley concludes that material objects can never be perceived on the indirect realist account of perception.

The Global Economy and Environment are Intertwined

Nina Miles[1]
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Morning B1, SAMC 170, April 23, 2022, 9:30 AM - 10:30 AM

As a result of the ever growing global population, carbon emission levels are at a record high. This is a direct consequence of industrialization, the more a country produces, the higher the rate of carbon emissions will be released into the atmosphere. Climate change will affect everyone, although how an individual country will react will vary depending on the status of its economy. As a country's economic development progresses its environmental damage/condition will be ignored until a certain level of wealth/productivity is reached. Then a country's environmental policy will shift to better protect the environment. By running data from every country through statistical models on both SPSS and Stata, collected from the World Bank and the Sustainable Development Report, I was able to conclude that there is in fact a positive relationship between buoyant economies and carbon emissions. Due to economic instability, developing countries, especially those facing high poverty rates, will face the adverse effects of climate change at a much higher rate compared to developed countries. I theorize that after enduring economic instability, a country's environment is going to deplete before it can improve in response to economic gain. In order to reduce the hardships impoverished countries will endure, the global community must implement a climate policy that will meet the needs of each individual country. This policy must not only align with the Sustainable Development Goals developed by the UN, but will assist in reaching the goal set by the Paris Climate Agreement, which is to keep the rise of carbon emissions under two degrees by 2030 (United Nations, 2022).
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Hate crime underreporting

Mr. Nathan Vigil[1]
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Morning B1, SAMC 170, April 23, 2022, 9:30 AM - 10:30 AM

To begin the main goal of this research is to achieve some sort of understanding as to why there is such a significant gap in the reporting of hate crimes. Understanding this gap is important because it has a strong mental/emotional effect on such a large portion of our population within the United States of America. As in every problem, we cannot solve it unless we view the issue clearly, underreporting prevents us from doing just that. To give some insight Hate Crime is a crime committed with the motivation being hostility to the victim as a member of a group (Nolan and Akiyama, 1999; Walters, Brown and Wiedlitzka, 2016). The scope of this research is informed by the collection of hate crime data, containing details about offenders, reoffenders, and victims, along with other factors. The current state of this research topic is expanding. Research on Hate crimes has increased as a result of recent social upheaval towards the treatment of minority groups (I.e. Sexual Orientation, Gender, Race, Ethnicity). The bulk of this data will be derived from the FBI hate crime report and the National Crime Victimization Survey. These two data sets are two different takes on how to collect data on hate crimes. The FBI hate crime data set is comprised of volunteered data from police departments which are sent to the FBI. This leaves gaps due to two main reasons. First is that reporting the hate crimes that occurred in a given area may affect the value of homes

amongst other things, simply said, no one wants to make their area seem bad. The second is that there is no requirement for law enforcement to report the hate crimes to the FBI from a federal law standpoint. Now the National Crime Victimization Survey (NCVS) offers a different stance as they collect the data from individuals through a survey approach. This records what occurred, if damage was inflected, relationship to victim along with many other factors. This offers a more comfortable way of reporting a hate crime allowing for more truthful/accurate reports.

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Driving Without Humans

Eduardo Amoretti[1]
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Morning C1, SAMC 173, April 23, 2022, 9:30 AM - 10:30 AM

Self-driving cars may take over our urban city streets in the years to come, and this could lead to significant changes. This paper focuses on the economic impact of fully autonomous vehicles on urban cities and reviews the existing literature on the topic. The results indicate that there is no consensus in the literature on the potential impact of fully autonomous vehicles on urban cities. The outcomes are highly dependent on the assumptions made about consumer preferences, business model that is going to be implemented, and potential infrastructure costs that emerge with the introduction of fully autonomous vehicles (AVs). I also analyze the potential impact of AVs on consumers under different scenarios.

Characterization of Additively Manufactured 17-4 PH Steel Structure with Ultrasonic Technique

Mr. Justin Boswell[1]
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Morning C1, SAMC 173, April 23, 2022, 9:30 AM - 10:30 AM

Additive manufacturing (AM) of metal structures is rapidly gaining attention in the industry for convenient prototyping and fabrication of non-critical components that are otherwise impractical to produce. Many challenges remain before the technology becomes widely adopted. Primarily, AM parts tend to show weakness in mechanical integrity, mainly resulted from defects intrinsically associated with the AM process such as surface roughness and lack of densification and possible material homogeneity. We developed an ultrasonic-based technique and methodology to characterize fatigue behavior of AM structure, allowing the study of how certain AM parameters like printing direction and layer orientation affect the mechanical integrity of 17-4 PH stainless steel structures. In this presentation, the specimen design considerations and experimental tests and results will be discussed, including the simulation work to rationalize the observations and the proposed hypothetical interface layer between printed layers. Microstructure inspection with scanning electron microscopy will also be shown to relate to the mechanical weakness in the tested structure, followed by plans to continue the research project.

Application of cost-effective ultrafiltration method to monitor COVID-19 through wastewater-based epidemiology

Ms. Vicky Huang[1]
[1]*SUNY at Buffalo*

Morning C1, SAMC 173, April 23, 2022, 9:30 AM - 10:30 AM

Wastewater-based epidemiology is becoming an effective method to track the spread of COVID-19 diseases in a community because infected individuals shed virus particles in wastewater. Viruses in wastewater are quite diluted and the concentration is typically undetectable. It is therefore critical to concentrate viruses from wastewater before detection. Previous study has reported that ultrafiltration-based method can concentrate virus particles with minimum damage to virus structures and thus benefiting sensitive

downstream detection. However, the high costs of ultrafilter membranes prevent wide application for processing wastewater. The main goal of my research is to optimize and lower the costs for ultrafiltration methods. We developed a reusable ultrafiltration method and the method was tested to concentrate viruses in wastewater collected from seven wastewater treatment plants, including Town of Amherst, Big Sister Creek, Lackawanna, Southtowns, City of Tonawanda, Kenmore Tonawanda, and Bird Island. In this presentation, the fundamental ultrafiltration method will be discussed, along with the membrane cleaning steps applied in this method.

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Steroids in Professional Sports

Ryan Chwojdak[1]
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Morning D1, SAMC 176, April 23, 2022, 9:30 AM - 10:30 AM

In this research paper I will examine the use of steroids in the world of professional sports by comparing two documentary films: Screwball by Billy Corben; and Bigger, Stronger Faster by Christopher Bell. Both filmmakers approach the issue with distinctive techniques, often deploying humor to depict serious situations, but cutting to the core of a cultural crisis for athletes. Many athletes have resorted to using steroids due to a "winning at all costs" mentality related to athletics even if these drugs were illegal or frowned upon by most of the American public. Corben shows that the use of steroids by multiple athletes in the MLB changed the game and set poor ethical standards for children around the world. Bigger, Stronger Faster illustrates a similar trend in professional wrestling. In both films, we see devoted fans discover that their heroes have been cheating on their journey to greatness and fame. This project will examine how performance-enhancing drug controversies have changed the games as well as the public's view of sports over the years, and how these popular documentaries uniquely illustrate the phenomena.

Perfectionism in Women's Gymnastics

Jenna Dota[1]
[1]*SUNY Buffalo State*

Morning D1, SAMC 176, April 23, 2022, 9:30 AM - 10:30 AM

In this paper I will explore the idea of perfectionism in women's athletics. Specifically I will analyze the environment of women's gymnastics in the United States. I will show how the desire to achieve greatness can have disastrous consequences if not addressed. This climate of comparison can lead to major sports injuries. Even greater, this can result in psychological issues such as eating disorders and deep fear of failure. In Erin Lee Carr's At the Heart of Gold: Inside the USA Gymnastics Scandal, we get a full view into the world of women's gymnastics and how fear played a role in the sexual abuse scandal by doctor Larry Nassar. I will analyze how the issues are presented in this documentary and the ways in which female athletes struggle to survive life in the spotlight. I will also examine these issues in light of Tomlinson and Yorganci's research on male coach/female athlete relationships in sports.

Art and Technology: Reviving Van Gogh for a New Generation

Mary Geisert[1]
[1]*SUNY Brockport*

Morning D1, SAMC 176, April 23, 2022, 9:30 AM - 10:30 AM

Our world is ever-changing due to technology's rapid progress; some changes have been beneficial while others have been detrimental. My Honors Thesis focuses on exploring whether such progress has had a positive or negative impact on the art world and its audiences. As such, the purpose of this presentation is to illustrate the difference between direct observation of still works of art versus being able to be fully immersed in said works via projection technologies. Starting with a brief history of artist Vincent Van Gogh, as well as an examination of the Impressionist movement in Paris in the 19th c., will lead me to an analysis of direct observation of his paintings, which was how works during his lifetime were meant to be

experienced. I will then take my experience of the Beyond Van Gogh exhibition and compare the two. While each method of viewing art has its merits, the ability to emotionally connect with Van Gogh's works is magnified by the immersive format, and I will show how these technologies have the power to revive history for a whole new generation of young artists.

Social Media and Social Class: The Perfect Storm

Ms. Kelly Gleeson[1]
[1]*Suny Purchase*

Morning D1, SAMC 176, April 23, 2022, 9:30 AM - 10:30 AM

Social media influences a plethora of aspects of our life including what we consume, what ideas or objects are currently popular, whom we should listen to. As we spend so much of our spare time online, we can see every minute of someone else's life, even if they live thousands of miles away from us, speak a different language than us, or quite often, are in a different tax bracket than us. When the upper class takes on the role of "influencers," they often flaunt their extravagant assets such as sports cars, gigantic mansions, and designer clothing on social media apps, most notable on apps such as Instagram and TikTok. The upper class enacts their power through techniques like flex culture, paid sponsorships, algorithmics, and paid-post boosting. As a result of using a mixture of these techniques, the upper class typically flaunts their wealth to an audience who is made up of mainly working and lower class, I argue that this creates a power dynamic where the upper class manipulates how the lower class views themselves and what to consume, contributing to a capitalistic society.

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Temporal Changes on the Immune Response and Redox Status of Mouse Macrophages Caused by METAC-Engineered Cellulose Nanocrystals (CNCs).

Mr. Willie Corley[1], Ms. Julia Drolet[1], Mr. Hoang Nyugen[1], Mr. Tanner Tobias[1], Dr. Rajesh Sunasee[1], Dr. Karina Ckless[1]
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Morning A2, SAMC 151, April 23, 2022, 10:45 AM - 11:45 AM

Previously, we determined that CNCs engineered with a cationic polymer such as poly(2-methacryloylethyl) trimethylammonium chloride (+NMe3METAC), elicit an appropriate immune response with no cytotoxicity, using cell-based assays. The CNCs were synthesized with the same proportion of cationic groups but with different amounts of initiator sites on the surface of CNCs during the polymerization process, to obtain CNC-METAC-2B (less polymer) and CNC-METAC-1B (more polymer). In this study, our goal is to investigate the mechanisms of immunomodulation of engineered cationic CNCs, CNC-METAC-1B and CNC-METAC-2B, by analyzing temporal changes on the immune and redox response, using mouse macrophage cell line (J774A.1). To achieve this goal, we treated the cells with 10 or 25 µg/mL of CNCs and evaluated their biological effects at 2, 4, and 24h. CNC-METAC-2B induced IL-1β secretion at 2h in the presence and absence of LPS, while its counterpart had no effect in these experimental conditions. In addition, CNC-METAC-2B was shown to enhance the TNF α secretion in presence of LPS, only after 24h of treatment. Our results showed that both CNCs increased the most mitochondrial ROS at early exposure time (2h). We also observed that CNC-METAC-1B treatment induced a peak of protein glutathionylation (PSSG) at 2h of exposure, while its counterpart at 4h, and only CNC-METAC-2B cause a time-response increase in NOX4 expression. To summarize, this study confirmed that these CNCs have an impact on mitochondrial ROS, mainly at early time points but this effect does not correlate positively with the peaks of PSSG. However, the expression of NOX4 strongly correlates (Pearson's r= 0.966) with PSSG in cells exposed to CNC-METAC-1B. Overall, CNC-METAC-1B seems to elicit an earlier redox response, and CNC-METAC-2B showed stronger immunomodulatory property.

The Effects of Chronic Short-Term Noise on Tinnitus in CBA/CaJ Mice

Emily Demieri[1]
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Morning A2, SAMC 151, April 23, 2022, 10:45 AM - 11:45 AM

Chronic tinnitus is a common problem where sufferers can experience a disturbed quality of life due to lack of sleep, mental distress, the inability to work, and even suicidal thoughts or actions. The present study investigated whether tinnitus caused by short bursts of noise has a later onset and is more reversible than tinnitus caused by a longer exposure of noise. Laboratory mice of the CBA/CaJ strain were used in a pre-post-test design to measure the onset and duration of tinnitus using a two-alternative identification paradigm testing procedure. Mice were first operantly trained to categorize sound stimuli and then housed in noise-exposure booths for 40 days while 8 hrs/day of 85 dB SPL broadband white noise was presented. The mice experienced 16 hrs/day of relative quiet during the 40 days and continued to be tested in their operant testing booths for 1 hr/day for 5-7 days/week. The dependent variable is the percent of trials correctly categorized each day before, during, and after noise exposure. If the mice experience tinnitus, their categorization of 'no noise' trials (silent trials) shift, while categorization of the other sound stimuli is not affected. We hypothesized that the tinnitus that develops in mice exposed to broadband white noise

presented at 85 dB for 40 days will take longer to develop and will be more likely to be reversible when the exposure is 8 hrs/day (current study) than when presented for 23 hrs/day (Burke et al., 2019). Our results challenge this hypothesis by showing that the tinnitus that develops in the current experiment has a similar onset to the previous experiment and is equally irreversible. These experiments highlight the importance of using an ecologically relevant workday-like noise to model the experiences of tinnitus in humans.

Does Marcescence Present in Oak's During Winter Lead To Healthier Oak's in Spring

Nathalia Giraldo[1]
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Morning A2, SAMC 151, April 23, 2022, 10:45 AM - 11:45 AM

Climate change is a concern for all environmentalists, with the increasing greenhouse gasses causing the lower temperatures and harsher winters in the United States. Oak trees are a keystone species in Westchester County, New York. Understanding of the oak life cycle and documenting if there are changes in their phenology due to climate change is key to the protection of these keystone species. Marcescence is the retention of dead leaves after the warm season has ended. Marcescence is hypothesized to be mainly displayed by younger oaks saplings, but observational data suggests marcescence is not exclusive to saplings. Other hypotheses as to why leaves are retained in the winter include bud protection against browsing animals and nutrient cycling during the winter months. We will observe and record the natural behavior, processes, and activity of a few oak trees on the campus of Westchester Community College that display marcescence. The phenology of trees of various heights and girths will be observed from early February into the spring months. We will also observe and record data on oaks not displaying marcescence to compare. The formation of new leaves will push marcescent leaves out and off, and in the spring a determination of the health of the trees should tell us if there is a difference in those who displayed marcescence through the winter and those who did not. My hypothesis is that marcescence is a protective mechanism and the trees that display marcescence will be healthier.

Histological Analysis Supports a Single Spawning Event in Lake Ontario Deepwater Sculpin

Jarrod Ludwig[1]
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Morning A2, SAMC 151, April 23, 2022, 10:45 AM - 11:45 AM

Considered extirpated from Lake Ontario until the late 1990s, deepwater sculpin have naturally repopulated the lake since then. As their reproduction is poorly described, we investigated their gonadal development and fecundity to better understand their resurgence. From 2018 to 2021, deepwater sculpin were collected from Lake Ontario in spring and fall using bottom trawling. To evaluate the duration of their spawning period and if females spawn several times during their spawning period, we examined their gonadosomatic index (GSI = gonad weight x 100/body weight), gonadal development, and fecundity. Our data showed that female GSI remained elevated in fall (7.4 ± 6.3%) and spring (4.3 ± 4.2%). Absolute fecundity, measured as the number of the largest oocytes present in the ovary, averaged 763 ± 246 and relative fecundity 19 ± 6 oocytes per gram of fish. The histological analysis revealed the presence of only one batch of developing oocytes in the ovary. We suggest that deepwater sculpin spawn once annually but have a protracted spawning season. These data provide insight on their reproductive strategy and can be contrasted with the

ones of the declining slimy sculpin and the abundant round goby populations for potential reasons of their resurgence in Lake Ontario.

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Affirmative Action Policies Are Needed to Diminish Educational Inequalities

Jiselle Abraham[1]
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Morning B2, SAMC 170, April 23, 2022, 10:45 AM - 11:45 AM

Having affirmative action policies put in place would help to diminish educational inequalities. This literature review is an examination of the prospects of affirmative action and the role it plays in school admissions. This research is geared towards showing that affirmative action is only a response to combating racially driven institutions, not only in America, but also used as an example in this research is other parts of the world that may experience racism or their own version of inequality. Showing that affirmative action should still be used as a tool to combat issues that can still go unresolved. The statistical aspect of this research is based in the United States and meant to show how affirmative action plays a role in an increase of percentage of high school and college graduates among minorities. With two different models, running a Binary Logistic Regression model and a Linear Regression model, showing if affirmative action policies matter to essentially college minority graduates and what the determinants of affirmative action are when applied to a set of variables. What's shown is that when adding in other factors, for instance, median household income, we see the effects affirmative action may have on it but also the effect median household income has on high school and college completion and how it can even play into other aspects such as minority owned businesses. The research conducted here is important because it keeps alive the awareness of policies such as affirmative action and the social disparities it continues to try and correct not only in America but in other parts of the world, too

Methadone Maintenance: The Significance of Identity in the Recovery Process

Ms. Courtney Coseglia[1]
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Morning B2, SAMC 170, April 23, 2022, 10:45 AM - 11:45 AM

Marsh B. Ray's study, "The Cycle of Abstinence and Relapse among Heroin Addicts," concludes a critical aspect of recovery from drug addictions is whether or not the addict can adopt a new identity as a "non-user" (Ray, 1961). While this conclusion is sound, its application to those who are recovering from opioid abuse through methadone must be considered. The essence of methadone maintenance implies a dependency on a new drug, which may indicate a discrepancy between Ray's conclusion and its applicability to methadone users. Methadone maintenance is a medication assisted treatment process for various opioid addictions. It is prescribed to block withdrawal symptoms and opioid cravings. Methadone maintenance purportedly allows the user to return to a more normal and productive life. However, its negative impacts on the user's life and ability to progress are significant. This study examines the level of progression that methadone allows in the recovery process by sociologically analyzing the perspective of the methadone user on their identity transformation (or lack thereof) and the accompanying obstacles from opioid abuse to recovery. Data collection for this study is currently being conducted through interviews with methadone users, with questions pertaining to the dynamics of their identities throughout their lives. Other questions ask about their level of satisfaction with their lives and the progress they have made. At this point in my research, I have found that most participants' identities remain unchanged, and they feel that they have

made little progress in their recovery aside from the cessation of secondary deviance and avoidance of prison or untimely death. Several people I have interviewed feel shackled by methadone, often alluding to the common metaphor of “liquid handcuffs''. This suggests a reciprocal relationship, and possibly a reciprocal causation, between an unchanging identity and inability to progress toward a life they feel is worth living.

Sunchoke substitution for potatoes chip as a healthy diet for students: Grow, eat and heal project

Mrs. Nahid Fathi[1], Leean Williams, Kiranvir Kaur, Sirajuddin Siddiqu
[1]*SUNY Old Westbury*

Morning B2, SAMC 170, April 23, 2022, 10:45 AM - 11:45 AM

The Sunchoke product and service, centers on the plant and tuber for a healthy lifestyle. SunChoke benefits one’s quality of life through education and awareness of diabetes, obesity and other underlying health conditions. Advocating mental health with integration of technology and sustainable means of trust “grow, eat and heal” is also an important aspect among the Sunchoke network. Sunchokes are a healthy dietary alternative to potato based snacking chips. They are a rich source of iron, potassium, calcium, and vitamin B1. On top of all of that, they are also lower in calories, and have a lower glycemic index to stop spikes in blood glucose. They are also special in that they contain the carbohydrate inulin, which allows for the maintenance of a stable blood glucose level. Therefore, sunchokes are a good snacking option with those diagnosed with diabetes, and obesity health issues. These chips provide a better “on the go” snacking option and encourages people to “Snack with a Purpose”. The Sunchoke product and service is a manually established substitute, with hopes of developing a more extensive business plan. This product placed second in the inaugural SUNY LI PitchFest, which was a Shark Tank-like competition for college students, attesting to the potential success that this product holds in its future.

Infant Mortality in the United States and its Correlation to Health Care Access

Taiya Hakes[1]
[1]*SUNY Brockport*

Morning B2, SAMC 170, April 23, 2022, 10:45 AM - 11:45 AM

If the United States is so advanced in their medical technology and medical spending, why is infant mortality so high? Focusing on the criteria like socioeconomic status (SES), race, and location, research has found that these specific demographics are at higher risk. I have researched correlation between all of these characteristics and access to healthcare. It is well known that the United States has a poorly set up healthcare system. It is very expensive which makes it hard for a lot of people to get the care they need. So what is the leading contributor as to why the infant mortality rate is so high in the United States? This is an empirical analysis. I will be looking at all different kinds of statistics and articles and using them to compare and contrast different methods and techniques to decrease infant mortality. I will be analyzing data from my research to form a conclusion on why the United States has such a high infant mortality rate and what can be done.

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Culture's Inescapable Grip: Uncovering a Masked Rhetoric

Aliyah Carroll[1]
[1]*Buffalo State*

Morning C2, SAMC 173, April 23, 2022, 10:45 AM - 11:45 AM

How many times did a message persuade you today? On your commute here, how many billboards did you encounter? While scrolling through your Facebook feed, did you read any motivational quotes? In the morning, when you poured your bowl of cheerios, was there an ad embedded in the cereal box? The average person would most likely shrug, give a strange look, and say, “I don’t know,” when asked how many times he or she has been persuaded. While I can’t give you an exact number for how many times you fell victim to a persuasive message today, I can tell you this: By the end of the day, you will have received around 400 persuasive appeals from marketing vendors alone. The purpose of my research is to provide insight on how we are persuaded, to establish an understanding on how our behaviors, emotions, values, morals, and actions, are all influenced. Using modern day rhetorical criticism methods, I will explore how our culture uses values, myths, and fantasies, to seep messages into our everyday life. Ultimately, my research focuses on how these methods are ingrained into our culture and why the impact can be both encouraging and detrimental to the state of our mental health.

Vocal Training for Male Voice: Learning to Teach by Teaching to Learn

Mr. Daniel Fronckowiak[1]
[1]*Buffalo State College*

Morning C2, SAMC 173, April 23, 2022, 10:45 AM - 11:45 AM

As a singer of 30 years with extensive professional experience, the researcher became an undergraduate student to obtain the degree and certification required to teach music in public school systems. Having never received any private voice instruction, the researcher did not know how to produce vocal music. By learning the fundamentals of vocal technique, the researcher witnessed mentally and physically at odds with the cumulative body of experience. The experience caused curiosity on how to train this particular male voice using teaching as a tool to learn the new vocal technique. The experiment lasted for four weeks. During the first two week (five days a week), the subject learned the new vocal technique accompanied by 20 minutes of daily vocal technical exercises (DVTE). During the third week (four days a week), the subject was able to sing 30 minutes of DVTE without feeling physically tired, and started to teach 10 minutes sessions to four different students for four days. During the last week of the experiment, the subject was able to sing 45 minutes of DVTE without physical or mental fatigue and taught 10 minutes sessions to two to four students for four days. Practice and teaching journals were kept to collect data for any interesting findings. The findings include 1) how air functions to change pitches in human voice, 2) how teaching increases self-awareness for own learning. An additional surprising and profound finding is that there was a close relationship between emotional state and learning new material. Unaware of this discomfort when learning a new material caused an unpreparedness for the emotional and psychological challenges to be faced. This project involved a study of vocal technique that usually happens over the course of 7 academic semesters. The timetable of this project according to the intensity of the Lee Silverman Voice Training methodology shortened the learning process to 4 weeks. Learning about the process of learning, and how one engages in that process when assuming the identity of a learner prepares learners to finally learn. PowerPoint presentation will be used for this oral presentation.

The Covid Classroom

Christopher Sill[1]
[1]*SUNY Fredonia*

Morning C2, SAMC 173, April 23, 2022, 10:45 AM - 11:45 AM

The Covid Classroom is a 10-minute expository documentary focused on how COVID-19 impacted the SUNY Fredonia campus and what its effects were regarding learning in the classroom. Research was conducted using information gathered from SUNY Fredonia's online resources and emails, as well as through interviews with students and an associate professor at the university. The expository genre of the documentary allowed for the narration to explain the information and events that occurred after the announcement of SUNY campuses closing during the primary wave of the pandemic. B-roll footage of the campus, including classrooms, the student body, and campus landmarks, allows for viewers to have a better understanding of the spoken facts. The documentary began its production in August 2021 after receiving The Donald Nasca Undergraduate Student Research and Creativity Award and was filmed and edited during the Fall 2021 and Spring 2022 semesters. The production concluded in March 2022. The Covid Classroom illustrates the struggles students had to face throughout the pandemic and how they were overcome on campus through classroom accommodations, mask policies, social distancing, and quarantine experiences. SUNY Fredonia had a strong focus on the well-being of the community throughout the hard times, allowing the documentary to highlight the accomplishments and prosperity the campus community was able to achieve during this time. Audiences will be able to relate to the contents of the documentary, as many colleges had similar ways of handling the virus on campus and will hopefully find the firsthand experiences of the students and professor compelling.

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Field Guide to Butterflies

Ashley Halm[1]
[1]*SUNY Fredonia*

Morning D2, SAMC 176, April 23, 2022, 10:45 AM - 11:30 AM

"Field Guide to Butterflies" is a digital interactive braided essay formatted as an HTML program that draws on autotheory and hypertext for its content and form. Inspired by countless works by authors ranging from Roland Barthes to Vladimir Nobokov to Maggie Nelson, the essay is a collage of fragments of poetry, memoir and literary theory that explores my personal experience of gender and sexuality through the lens of my conservative upbringing in a rural environment, as well as the natures of memory and language as they pertain to our concept of identity. Fragments are nested within one another and form paths that twist and cross like red string on a conspiracy theory board. It is at once a commentary on gender politics and queer theory, a autobiographical account of my childhood in a small rural town, and an exploration of diary, memoir and storytelling as literature. Given the hyperlink text as a medium, every reader's experience of the text as a whole will be unique depending on how they decide to move through the text. Because there can be no one unified reading of the text, "Field Guide to Butterflies" by nature can never really be finished or fixed in time. Only through multiple readings can it turn toward a state of completion.

James Cameron's Story of Science Fiction v. Jodorowsky's Dune

Dawson Joyce[1]
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Morning D2, SAMC 176, April 23, 2022, 10:45 AM - 11:30 AM

In this research paper, I will compare and contrast two different documentaries revolving around the genre of science fiction in the landscape of cinema: the 2018 television miniseries Story of Science Fiction, created by James Cameron, and the 2014 feature film Jodorowsky's Dune, directed by Frank Pavich. On the surface level, these two couldn't be more different, as Story of Science Fiction is an exploration into the genre as a whole that ponders the question "What if…?" regarding several sci-fi concepts, while Jodorowsky's Dune details the troubled history of cult film director Alejandro Jodorowsky's unsuccessful attempt to adapt and film Frank Herbert's legendary sci-fi novel Dune in the mid-1970's. However, looking closer, the un-produced Dune adaptation would help pave the way for a successfully produced film like Ridley Scott's Alien, one of the seminal sci-fi films discussed in Story of Science Fiction's first three episodes: Alien Life, Space Exploration, and Monsters. Most significantly, bio-mechanical artist H.R. Giger was part of the special effects team on both projects, shaping the films' visual direction with his conceptual illustrations and creature designs. Additionally, Alien co-screenwriter Dan O'Bannon was to be the director of special effects on Dune. The study will delve deeply into how some of the greatest stories of success and failure in Hollywood can come from the same place. The factors leading to or preventing a film's development, including financing and creative synergy, can provide lessons for younger generations of filmmakers.

Power Behind the Muscle: Link Between Athletes in Contact Sports And the Emergence of CTE

Moises Rijo[1]
[1]*SUNY Buffalo State College*

Morning D2, SAMC 176, April 23, 2022, 10:45 AM - 11:30 AM

My research project will synthesize a discussion of two documentaries focused on former NFL football players who were charged with murder and recent research on chronic traumatic encephalopathy (CTE). Aaron Hernandez is the subject of the docuseries Killer Inside: Mind of Aaron Hernandez (2020) directed by Gino McDermott, and O.J. Simpson is the subject of the standalone film O.J: Made in America (2016) by Ezra Edelman. I will examine how the similarities of circumstances, behaviors, & actions of these two sports professionals show how devastating CTE can be not only to the man, but to their friends and families. As long as O.J. Simpson is still alive, it is not possible to confirm a diagnosis of CTE. However, Hernandez was confirmed to have severe CTE post-mortem, and his case can be used as a proxy to identify some of the traits of this condition & apply the same guidelines to determine whether CTE may be responsible for O.J. Simpson's post-career legal woes. These notorious former athletes who went off the rails (especially in criminal and legal terms) may prove to be a boon to the argument that CTE is not only a serious threat to the NFL, but seriously destructive to society as well.

Bother & Broomsticks: Paul Dukas and L'apprenti sorcier

Jenna Agro[1]
[1]*SUNY Buffalo State*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Composed in 1897, L'apprenti sorcier [The Sorcerer's Apprentice] by Paul Dukas (1865-1935) is a prime example of expert musical imagery and compositional skill. The symphonic poem, based on Johann Wolfgang von Goethe's poem of the same name, "Der Zauberlehrling," follows the story of a young, inexperienced magician who decides to have a little fun while his master is away. Things quickly get out of hand and the apprentice accidentally animates an entire army of broomsticks to do his bidding. The term "symphonic poem" was first used to describe Franz Liszt's 13 symphonic works beginning in 1848, through 1858, and then concluding with the 13th and final work in 1882. Dukas's most famous piece, The Sorcerer's Apprentice draws inspiration from several other sources while still staying true to many of the compositional values of the Romantic Era. This project will explore the limits of musical imagery and just how masterful Dukas's compositional technique is. The main theme, first heard by the bassoon, is one of the most recognizable melodies to ever be composed. It represents the broomsticks coming to life at the apprentice's command. This was visually depicted in Disney's Fantastia (1940) and again reprised for the film's sequel Fantasia 2000. (2000) Both films contain an array of musical vignettes. Each piece included was given its own animated short. The Sorcerer's Apprentice is the only work selected to be used in both films. Dukas's expert use of orchestration and compositional technique combines both musical imagery and text painting in a way that solidifies it as one of the best symphonic works to date.

Vampire Bat Chronic Stress and Immune Function are Resilient to Local Habitat Fragmentation

Mr. Benjamin Andrews[1]
[1]*SUNY College of Environmental Science and Forestry*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Anthropogenic habitat degradation, including forest fragmentation, is a leading cause of biodiversity loss worldwide. Before population decline occurs, organisms may experience chronic stress and immunosuppression. This makes monitoring wildlife populations experiencing habitat degradation increasingly important, especially for taxa that are reservoirs of zoonotic pathogens, which can spill over to humans. One such species is the common vampire bat (Desmodus rotundus) a sanguivore that is the primary reservoir for pathogens, like rabies, across Latin America. Based on results from prior studies of other Chiropteran species, we predicted that forest fragmentation will induce a stress response and associated immunosuppression. We compared an indicator of stress, neutrophil to lymphocyte ratios (NLR), and estimated total white blood cell counts (TWBC) of vampire bats inhabiting a locally fragmented and nearby continuous forest in the Orange Walk District of Belize (n=18 per site). NLRs (P=0.793, t=0.27) and TWBCs (P=0.221, t=-1.25) did not vary between individuals from each forest type, which can be explained by the ecology of vampire bats. This sanguivorous species feeds primarily on large mammals, like cattle. As newly deforested land is converted to cow pasture, food availability increases for the vampire bats, which could buffer against stressors of habitat fragmentation. We advise caution when interpreting these results, however, as we used only a single measure of stress and immunity. Further work will include glucocorticoid

deposits in fur, in tandem with NLR, and examine the relationship between physiological stress and disease load. This work was funded by the NSF (IOS 1656551, DEB 1601052), the ARCS Foundation, and the American Museum of Natural History (Theodore Roosevelt Memorial Fund, Taxonomic Mammalogy Fund).

The Millenniums of Music

Mr. Christopher Bailey-Robinson[1]
[1]*Buffalo State*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This project explores the concept of how the vast history of music affects the lives of many generations of people. Music has been with humanity for many generations and through many periods of change and innovation in human history. In the 10th century was a man named Guido d'Arezzo who was, and still is, a very influential music theorist whose contributions still hold strong to this day. Guido invented music notation which revolutionized everything about music and how many famous composers such as Wolfgang Amadeus Mozart, Ludwig van Beethoven, Johann Sebastian Bach, Franz Schubert, and many other musicians would interact with the artform years later. The music from these various eras of music is radically different from contemporary music, and with this difference comes variations in ideologies and ways of thinking. As a result of D'Arezzo's theories, many artists and musicians came into prominence and shook the music theory to its core in numerous time periods. Music affects and influences how people think and is reflected in the music of specific time periods. I will explore (a) the history of music, (b) it's affect culture, and (c) the specific musical events and masterpieces in specific time periods. Using this knowledge, I will be able to reflect on the effect music is having on what will become the history of today. Using music majors at an urban four year public college in upstate New York, I will ask subjects to listen to three to four masterpieces from different time periods and collect qualitative data about the recollections of the history of the time period.

Predictors of Internalizing Behavior in a High-Risk Sample of Kindergarten Age Children: Maternal Psychological Symptoms, Demographics, Substance Abuse, and Attachment

Ms. Olivia Bell[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The purpose of this study was to examine demographic and caregiving predictors of internalizing behaviors in a sample of high-risk kindergarten aged children. We hypothesize that maternal psychological symptoms (anger/hostility, depression, anxiety, and stress) during infancy, maternal demographic characteristics, and maternal substance use (cigarettes, alcohol, and marijuana) during pregnancy will predict internalizing behavior in kindergarten age children. In addition, we hypothesize that insecure mother-infant attachments during infancy will predict increased internalizing behaviors in kindergarten age children. The children in this high-risk sample were recruited on the basis of prenatal exposure to cigarettes. In addition, the sample was primarily low socioeconomic status and consisted of a large percentage of single-parent families. Participants consisted of 247 mother-infant dyads who were recruited at their first prenatal visit from one of two area hospitals. Mothers were interviewed during each trimester of pregnancy. Mother-infant dyads visited the laboratory when the child was 2, 9, 16, 24, 36, 48 months of age, and again when the child was in kindergarten. Each visit consisted of a combination of interviews and observational paradigms. Hierarchical

multiple linear regression analyses will be conducted to examine predictors of internalizing behaviors. The implications of these findings for informing prevention and information efforts will be discussed.

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Somebody's Watching Me: Keyloggers

Mrs. Rachel Bell[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

A keylogger is also known as a "keystroke logger." They can be used in a malicious manner to record sensitive data or in a harmless manner such as a parent monitoring their child's activity online. Keyloggers can be hardware or software, which are installed on the computer through file attachments or social engineering. The hardware version is usually a USB plugged into the computer or embedded in the PC.The issue with using a keylogger is, it can be detected through file scans and systems security. Some places such as offices may even have lockouts on their employees' USB ports. This research study focuses on how an individual can install a keylogger on a computer using a Rubber Ducky without being detected. The Rubber Ducky bypasses a lockout by tricking the computer into thinking it is a keyboard. The programming language for creating the keylogger will be Python. The Rubber Ducky device needs to be programmed to act as a user on a keyboard using its own scripting language. The end goal of this project is to successfully install a keylogger on a computer in a short time period that won't trigger system security. Keystrokes are recorded and sent to the person who installed the keylogger's email address. A demonstration of the script will be shown for the programming of the Rubber Ducky as well as the code that creates the keylogger.

DataBass for Buffalo Music Hall of Fame

Prayushi Bhorania[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The Buffalo Music Hall of Fame (BMHOF) was created to honor the region's musicians and music history for the cultural enhancement and enrichment of the community. Database management system is a crucial part of every organization to keep the data organized and to share data quickly, effectively, and securely across the organization. This research project will study how BMHOF can have an updated and easily editable database system..To conduct the research, information about the nominees at BMHOF will be gathered. The aim of this project is to have a structured database connecting the three main data tables which are Inductees, Nominees, and Memorabilia. The main focus of the research is to build the relationships between these three tables. The database platform that will be used for this research is Oracle Apex. The current raw data is in three different Excel spreadsheets and at the conclusion of this research project the data will be structured and stored in an online database environment. The online database will also be linked to an HTML or PHP page for easy access to information for the end-users. The Nominee table will have data being added periodically, and the data from the Nominee table will be moved to the Inductee table if the nominee gets inducted. The end result will also allow users to effortlessly view, add and edit the data into all three databases.

Project C.O.S.M.O.S.

Preston Biocevich[1], Jacob Burns[1], Ryan Goddard[1], Joe Guppenberger[1]

[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

C.O.S.M.O.S or Computer On-board Scientific Mobile Observatory System is an intelligent six wheeled robotic platform that will be controlled wirelessly and have a smart power system to provide constant power. The 2020-2021 senior design team began the project one year ago, and the 2021-2022 senior design team will improve upon the foundation of the previous group. C.O.S.M.O.S is a proof-of-concept model of the potential to enter the URC or University Rover Challenge in future years with a full-size rover. Potentially future senior design teams will continue to build upon the previous team's accomplishments until a full-size rover is developed.

COVID-19 Related Hearing Loss

Ms. Rachel Blake[1], Jared Laurito[1], Morgan Wright[1], PhD Nikki Go[1]
[1]*SUNY Fredonia*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Hearing loss due to viral infection is not uncommon. Several case reports on individuals who tested positive for COVID-19 (symptomatic and asymptomatic) with no prior history of hearing abnormalities have described the onset of hearing loss and/or tinnitus. It is unclear if the auditory system is a direct target of the novel SARS-CoV-2 virus. A few studies suggest an association between COVID-19 and hearing loss. Additionally, it has been suggested that COVID-19 may elicit un-noted hearing loss indicating subclinical auditory dysfunction, but scientific evidence is scarce and weak warranting further investigation. It is well-established that hearing loss can have detrimental effects on speech, language, communication, and learning. If undetected and untreated, it can have a persistent negative impact on one's overall well-being.The purpose of this study is to explore and understand the effects of COVID-19 on human auditory function and determine possible perceptual consequences that may be associated. Twenty-two volunteer participants (18-35 y/o) will be recruited in this study. The test group (n=11) includes symptomatic and asymptomatic individuals who had PCR-confirmed COVID-19 while the control group (n=11) is characterized by those never having been diagnosed with COVID-19. All participants with ear-related problems unrelated to COVID-19 and with significant history of noise exposure (i.e.,score ≥ 75LAeq8760h; Noise Exposure Questionnaire, 2017) were excluded from this study. The participants' individual hearing and speech perception abilities were assessed using a variety of audiological measures such as Pure Tone Audiometry, Speech Recognition Test in Quiet, Speech in Noise Test, and Time-Compressed Speech Perception Test. Individual auditory functions were assessed using Otoacoustic Emissions Test, Acoustic Reflex Test and Auditory Brainstem Response. Data collection will be completed by April 1, 2022. Data from the test and control groups will be compared and analyzed using appropriate statistical methods. The results from this study will lay the foundation for understanding the effects of COVID-19 on the human auditory and its associated consequences. If successful, it can lead to the development of an appropriate clinical protocol for the diagnosis and management of COVID-19 related hearing loss.

Mathematics in American Football

Tyler Capossela[1]
[1]*SUNY Purchase*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

How is mathematics relevant to the game of American football in the modern era? As a part of answering this question, my efforts have involved examining the many possible ways that mathematics has played such a crucial role in the development of the National Football League over the past decade. Additional methods used to aid in answering this research question include providing data figures that help support various explanations of fourth-down tendencies, offensive and defensive strategies and two-point conversion schemes. Numerous approaches have been identified for gathering information and evaluating articles that aid in the overall answering of this research question. This analysis has provided the foreground for detailing how mathematics has become an important talking point in and around football today.

Children's Toys and How They Prime Them into Gender Stereotypes

Elina Cerasani[1]
[1]Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This paper discusses the intentional separation of children's toys by gender and how that reinforces the negative ideas and biases set up for women and men in society. Throughout history, there has been gender segregation that has kept women and men from certain occupations and majors. Although in modern times this gender barrier has lessened, it still is a prominent aspect that prevents many people from pursuing degrees and careers outside of the gender stereotype. These biases are introduced to the next generation of children through their toys. According to research by Dinella and Weisgram (Gender-Typing of Children's Toys: Causes, Consequences, and Correlates, 2018), many toys that are created for children can impact the type of play that children engage in if they are categorized by gender and project gendered messages to the children. Dolls teach children to be nurturing, a trait that will encourage children to be more caring and understanding towards others. However, the toy is catered towards girls because of the stereotype of women being the main caregiver of children. The packaging is usually pink and stores place it in the girls' aisle, which deprives boys of an opportunity to learn those traits. These ideas encourage women towards nurturing careers such as teaching and push men away from them. Gender stereotypes and biases that are supported through these toys are negatively affecting women and men by placing them into boxes created by society.

Stigma Forced Sneakiness

Mr. Christopher Clark[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

As the modern era took hold the understanding of medicine, chemistry, and the biology of the human body skyrocketed in the developed world. Thus, beginning the decline of the cigarette's prevalence in the public view and changing the outlook of the cigarette from something powerful and demonstrative to a nasty addiction. This change in public view coincided with local municipalities and state governments banning the use of tobacco in a variety of public places. These removal efforts accompanied by stress-inducing public service announcements and a general dislike from the non-smoking community pushed a group of smokers into deeming their addiction as shameful. This group, known as sneaky smokers or closet smokers, hide their addiction from their families, friends, and coworkers to avoid ridicule. This issue is not all-inclusive; exclusivity comes as a societal class division. The stigma against smoking was seeming to trickle down from upper-class to lower-class. However, the tobacco industry doubled down on advertising and subliminal messaging in these lower-income communities to maintain their customer base. Thus, the tobacco stigma ultimately creates even further class division between the groups and a compassionless connection

between the 'stigma-infested' upper class and 'ignorant' lower class. This stigma is a double-edged sword, where one side is the ability to push people to quit and the other is pushing people into becoming sneaky smokers and developing a harmful disconnect. The psychoanalysis of sneaky smokers is growing in media and literature as the representation of this archetype is growing in everyday life.

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BERT-based Negotiation Chatbot

Matthew Clifford[1]
[1]Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Business negotiations are often hard due to conflicts of involved parties. Some negotiations can be not only time-consuming but also negative, resulting in the damages of business relationships when unexpected negative emotions grow. A solution to these problems is to automate negotiations with a robot. We propose a project to create a chatbot that can conduct business negotiations. For this project we will utilize BERT (Bidirectional Encoder Representations from Transformers) which is a deep learning natural language representation model that has a powerful bidirectional prediction and contextual understanding feature. The BERT model is pre-trained on an enormous amount of unlabeled data. The model allows high performance when it is fine-tuned to a specific task through additional training. The BERT model trains data by performing 2 tasks: MLM (Masked Language Model) which is used to predict the missing word(s) in close vicinity within a sentence, and NSP (Next Sentence Prediction) which is effective for the question/answer task. The first step in this research will be fine-tuning the model to our negotiation task, using more than a thousand bilateral negotiations experimentally conducted globally. Next, we will extend the MLM and NSP tasks to predict the binary result of a negotiation (successful or unsuccessful) and to generate an automated response to a human counterpart. The goal of our project is to have our BERT-based chatbot act as a business representative, helping two parties come to an agreement in a negotiation setting.

Elucidating the role(s) of POL32 during meiosis in budding yeast

Justin Cohen[1], Ashley Skaria[1], Dr. Nancy Hollingsworth[2], Dr. Tracy Callender[1]
[1]Farmingdale State College, [2]Stony Brook University

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

DNA polymerase delta, a highly conserved polymerase among eukaryotes, has been shown to be involved in DNA replication and various types of repair. In Saccharomyces cerevisiae, the DNA polymerase delta complex consists of three subunits, which includes a non-essential subunit, POL32. In vegetative cells, DNA polymerase delta (including Pol32) is required for chromosomal DNA replication and to repair DNA double-strand breaks (DSBs) in break-induced replication (BIR), a homologous recombination pathway used to repair one-ended DSBs. Additionally, it has been shown that POL32 is required for the function of the polymerase delta complex during DNA synthesis and BIR, as well as its interaction with PCNA. We hypothesize that POL32 may have a similar role(s) during DNA synthesis and strand extension in meiotic recombination.
Meiosis is a specialized type of cell division, which reduces the chromosome number by half, in the gametes used for sexual reproduction. Programmed DSBs are preferentially repaired between homologous chromosomes, to create crossovers, that mediate proper chromosome segregation during meiosis I. The DSB repair observed during meiosis using the homologous chromosome, as a template requires DNA synthesis, after the invasion of the 3’ single stranded ends into the homologous DNA duplex. There are two

processes during meiosis that might involve POL32: premeiotic DNA replication (S-phase) and meiotic recombination. In this study, we aim to understand the role(s) of POL32 in meiosis. Since pol32Δ results in chromosome instability during vegetative growth, a meiotic depletion allele of POL32 (pol32-md) was created, by putting POL32 under the control of the CLB2 promoter, in the attempt to prevent any mutations arising from problems during vegetative growth from affecting meiosis. Initial results have shown that the homozygous pol32-md diploid has a severe sporulation defect and a goal is to understand why.

Document Processing Software

Azeem Cole[1]
[1]Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The objective of this research project is to develop a software application for a company called Paychex. A part of this project is to stamp a PDF document with a QR Code that contains the appropriate information, especially an identification tag, to recognize when the document gets returned. The software application will have the capability to read the returned document and identify whether it was properly signed and retrieve the information from the QR Code that was placed on it. The first step of this project was to conduct research on the Java packages that can be used to implement the project and communicate the findings. A part of this software application will focus on analyzing and interpreting the document that gets returned. The difficulties of this project include several different ways that a document can be processed and returned. For example, the way the document is being scanned including the angle, the quality of paper, the language in which it is written (i.e., English or Spanish) as well as the location of the QR Code. The supporting software that is used during the project development are Jira, Eclipse IDE, and Visual Studio Code. The final product will differentiate between a properly signed document and improperly signed document. A properly signed document will then be stored in a database and an improperly signed document will be sent for manual review.

Transportation: A Barrier to Success

Alyssa Cook[1]
[1]SUNY Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This project aims to question what poverty and the lack of access to transportation look like in Buffalo, New York. After learning about poverty on a national scale and reading about the lack of access to transportation in many places across the United States, I want to locally observe this phenomenon and see how it affects people and poverty in real time. People who live in poverty often face transportation barriers such as the cost of a vehicle or even just the cost of gasoline and vehicle maintenance. Many times, people looking for work cannot even afford the public transportation to interviews. To collect information on this topic, the research method being used is the PhotoVoice method. Using this approach, 15 photos were taken in Buffalo and were narrowed down to 3 that I felt best represented the access to transportation in this area and its potential impact on poverty. I analyzed and broke down each photo to further explain how this was relevant to the larger scale of poverty represented in the literature that inspired this project. What I found through these photos was that Buffalo, as a larger city usually does, has a fair amount of public transportation. Whether or not it is affordable, convenient, or even a viable option for many residents is really the question. With this research, I hope to raise awareness on the importance of public transportation and its impact on people living in poverty.

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Pinkham Notch migmatite, New Hampshire: evidence of high melt percentage deformation

Mr. Cody Crist[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Rocks in Pinkham Notch, NH (Mt. Washington area, S of Gorham; Devonian, Central Maine belt) are part of a N-S-trending regional melted rock zone from central Maine through Massachusetts. Layered (stromatic) migmatite here are among the most impressive examples in the world, but most rocks in the area are not layered (diatexite; Wildcat granite). Outcrops in the Peabody River at the Great Gulf Wilderness trailhead have apparently layered and stromatic migmatite. Granite percent is higher than expected (25% or more) suggesting super-solidus conditions for a significant duration with low melt evacuation rate. Cm- and m-scale granite sheets are intrusive. Diatexite (schlieric granite) with separate, m-scale metasedimentary rock schollen are found in outcrop less than 100m to the SSW. Interestingly, the trailhead outcrops are less than 150m from the migmatite front (to the west), across which rocks are at amphibolitie facies (staurolite zone), suggesting a steep thermal gradient or a fault at the migmatite front.
Examination from a distance suggests the trailhead outcrops are stromatic migmatite with classic tripartite components. Closer inspection, however, reveals more complex structure at the m- to cm-scale. The stromatic structure is not throughgoing, and the rock structure is instead defined by sub-aligned, schlieric-granite-bounded schollen of stromatic migmatite (raft-like blocks; NNE-SSW-trending).
We documented the trailhead rock structures, including schollen shapes and attitudes, internal structures, and migmatite component percent. Results show the NNE-SSW structural grain is defined by moderate schollen shape-preferred orientation, and not by the internal stromatic structures. Schollen fabrics are flattened and include augen, boudinage, and folds, none of which transect schollen boundaries. The schollen are discordant relative to each other suggesting non-cohesive deformation and passive block flow that was melt supported. We conclude these rocks are not stromatic migmatite but diatexite where the protolith stromatic structure is preserved inside the schollen only. These rocks differ relative to the regional diatexite in opposite proportionality of diatexite and schollen, and appear frozen in the transition from metatexite to diatexite.

“If you have to use force, it’s rape” A Rhetorical Analysis Using Bitzer’s Rhetorical Situation Theory.

Ms. Caitlan Dean[1]
[1]*SUNY Fredonia*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This paper utilizes Bitzer’s theory of the rhetorical situation to analyze a magazine advertisement that is a part of an anti-rape campaign. The advertisement starts as two pages glued together depicting two legs pressed together; when one peels the pages apart it reveals an image of the legs now spread, connected to a body laying on a bed in a dark decor. Along the bottom of the two pages reads a line in very small white font “If you have to use force, it’s rape.” The rhetor behind this rhetorical act is an organization called People Opposing Women Abuse, who work to offer support to women, and fight against the violence women are subjected to everyday. The overall goal of the act was to persuade people to work toward making change in the real world to combat the violence many women face in their daily lives. The rhetorical act will be analyzed through the use of Bitzer’s theory, looking at the exigence that is the sexual abuse and

violence many women face in South Africa, as well as the audience of the act, and the different constraints faced by the act. It also analyzes Bitzer's idea of a fitting response, and whether or not the magazine advertisement was in fact a fitting response to the exigence. By using Bitzer's theory of the rhetorical situation, one is able to gain a better understanding of the act, as well as a better understanding of its persuasiveness.

PharmBERT: a Pre-trained Language Model for Pharmaceutical Error Prediction

Dustin Doctor[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Total number of retail prescriptions filled annually in the USA has reached 4.69 billion in 2021. However, the tracking over the service quality of the dispensation process is still very limited. In an effort to address factors that lead to quality-related events, some healthcare organizations and governments adopt error-reporting systems. Such reporting systems have collected pharmaceutical errors that either reach patients (incident events), such as incorrect drug, dose or quantity, or are intercepted at pharmacies (near miss events).
To discover common contributing factors that may have led to quality-related events, large-scale analysis of these event is crucial. Many common factors in retail pharmacies that resulted in an incident may not be obvious to the human eye and traditional data-mining solutions. With the progress of deep learning in natural language processing (NLP), the development of effective mining has been boosted, including the field of extracting valuable latent information from pharmaceutical documents.
In this research, Bidirectional Encoder Representations from Transformers (BERT), is utilized to make predictions on the pharmaceutical transaction data (collected by a Canadian error-reported system). To fit pharmaceutical data with the BERT model, we formatted event information into Natural Language tokens, and fine-tuned on the pre-trained BERT model. The trained pharmBERT model is able to achieve an accuracy of ~84% when predicting whether an event would result in a near miss (caught beforehand), or an incident (caught afterwards). We are also working on using this model to further predict other aspects of the event, such as what stage of the events (prescribing, transcribing, dispensing, administration, storage, and monitoring) the incident occurs or what category of issues the event falls under. We believe that the findings from this study could lead to solutions to reduce pharmaceutical incidents and provide improvements in patient safety.

The Effect of Stress on Food Reinforcement

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[1]Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The reinforcing value of food, or reward one receives from eating food, has shown to be related to BMI. It has previously been found that children who clicked faster for a food reward had higher BMI and adults who had a high reinforcing value of food also had higher BMI. What is unknown, however, is the effect stress has on reinforcing value. The hypothesis of the current study was that stress would increase reinforcing food reward in participants. The study began with participants relaxing for 20 minutes to establish a baseline stress level. Then, half went through a stressor, which was a mock job interview, while the other half were in a no-stress condition and played solitaire. After these activities, participants played a computer game on

one of two available computers. The first computer rewarded participants in reading time, while the second computer rewarded participants with either grapes or M&Ms. For the game, participants earned greater food and reading rewards by clicking more. Participants were run in a between subjects' design. Throughout the study, saliva samples were collected to test for α-amylase, blood pressure was measured, and self-rated anxiety was measured. It was found that participants who underwent the mock job interview had significantly higher anxiety and higher blood pressure readings, indicating that the stressor was indeed stressful. Participants in the stress condition clicked significantly less to earn either grapes or M&Ms compared to the participants who were in the non-stress condition. Although this contradicted the study's hypothesis, it showed that, in general, people may be less willing to work for food when experiencing stress.

Molecular Methods for Verification of Triploidy Induction in Brook Trout (Salvelinus fontinalis) during Embryonic and Sac Fry Development.

Ms. Hayleigh Durfee[1], Ms. Michaela Stachowski[1], Ms. Stephanie Cuomo[1], Ms. Kaylin Klein[1], Mr. Mark Whittmaker[1], Dr. Kathleen Gillespie[1]
[1]Suny Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Triploid induction is used to influence population numbers of Salvelinus fontinalis (Brook trout) in New York State rivers and lakes, making the fish grow bigger and faster during fishing season. The triploid state is induced when the polar body is forced to stay in the egg during fertilization, changing from a diploid (two) into triploid (three) chromosomes. Methods of triploid induction are either by heat or pressure shock. Heat shock uses opposite extremes in temperature to open the egg membrane and force the polar body in. Pressure shock uses high levels of pressure (~9500 psi). Triploidy is assessed by karyotyping red blood cell DNA, and by the morphology of adult fish, including size, colors, and spotting. This is a time-consuming process which does not verify the efficiency of the induction methods. The purpose of this research is to confirm the triploid state at the embryonic/fry stage of the fish life cycle using molecular tools. Multiplex PCR (Polymerase Chain Reaction), agarose gel electrophoresis, and capillary electrophoresis utilized DNA extracted from embryonic and fry fish treated with pressure. Preliminary research revealed a pattern consistent with triploid chromosomes, observed from the capillary electrophoresis chromographs of the trout specimens. The next steps will be creating novel primers to test in the triploid state and optimizing multiplex PCR for use with agarose gel electrophoresis.

Mental Illness and Buffalo

Tanner Edmondson[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My research question will be how the surroundings of the City of Buffalo affects the impoverished's mental health and what can be changed to help. Mental illness is often viewed as a common problem among men and women however what study seems to neglect is the mentally ill among the impoverished. In the text "Poverty and Mental health" provided by The Mental health foundation, A well known health organization found the link to most mental illnesses are linked to the social exposure of surroundings. Examples of social exposure are unemployment, poverty, and parenting. This photovoice will cover how the mentally ill are affected by poverty at a more alarming rate than the common person in Buffalo as well as entail the importance of the aid of the mentally insufficient in Buffalo. Another goal of the photovoice is to show how the reader can identify the situation when varying from place of population and from person's age to

gender to social status. This will all be shown and achieved with the help of my photovoice poster, visual aids that will be used in my poster will be provided by the City of Buffalo and while hopefully speak on the same urgency as all of America.

Summer of Soul

Jordan Epps[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

I want to bring attention to the black culture that goes unnoticed. I want to compare the history of black people that we learn in school to history that is never discussed. I will mostly refer to the documentary "Summer of Soul" (Questlove, 2021). I plan on using other documentaries to show the accomplishments and successes of black people rather than the stories we all know about slavery, segregation, police brutality, unjust killings, etc. The paper (or podcast, not too sure yet) will explain the problems of only learning the negative sides of black history. I want my research to show that black culture goes beyond tragedy. Black history goes deeper than the surface of our struggle and misery, without taking away from them. I want to interview mostly black individuals who grew up during the time of The Harlem Cultural Festival (the setting of "Summer of Soul"). I also want to get the opinion of those who teach black history. This is important to me because I want black youth to know that it is possible to be successful and black. We are not our struggle and we don't have to remain oppressed. Knowledge is power.

Housing: No Place to Be Poor

Jordan Gant[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

How is poverty in Buffalo, NY and how is housing being affected by it? We know that across the country poor people struggle to find affordable housing. About a third of Americas households are paying more than 30% of their incomes on housing, leaving them to make hard decisions about food, transportation, and healthcare. For my project I will display photos from Buffalo, NY to show the housing problem. Some of these photos will include locations where homeless people sleep (under bridges or shelters) and I have taken photo dog abandon houses. The poverty rate in Buffalo, Ny has stayed at the same percentage for about 15 years making it 28-29%. Buffalo is rated number 3 on a list of the nation's poorest cities. This city contains at least 35 different neighborhoods, and it is very diverse area. When the pandemic started people all over the city lost their jobs leaving people in desperate situations with the cost of living, food supply, health care, etc. The cost of living in a household should not be 30% more than the average person's income because there are other bills people must pay for. My poster will include ways to help the homeless in Buffalo and raise awareness that these people still matter by giving everyone the same opportunities, so they are able to better themselves.

Synthesis and applications of dengue reporter virus particles in evaluating co-evolution of dengue virus immunogenicity and anti-dengue immunity

Chad Gebo[1]
[1]*SUNY Upstate Medical University*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Viruses mutate over time in response to environmental pressures. One driver of genomic evolution in human viral pathogens is the anti-viral antibody responses generated by individuals who recover from a previous infection with a similar virus. The antagonistic relationship between viruses and anti-viral immunity suggests that the two are constantly co-evolving at an individual and population level. However, the rate and exact nature of the co-evolutionary process remains poorly defined for many human pathogens. In order to evaluate this, collection of virus and immune samples are needed, and the development of reporter systems can aid in this process. Our lab is developing a stable and reproducible reporter virus platform that will allow us to quickly synthesize reporter viruses based on the genetic sequence of a target virus of interest that will generate a fluorescent protein to signify infection. We want to use this platform to be able to formally test the co-evolution of viral mutation and anti-viral immunity.
Using this platform, we will evaluate strains of dengue virus sequenced in Thailand over a period of 10 years. Dengue is a global disease impacting predominately tropical regions, where increased severity of secondary infections is caused by closely-related serotypes of dengue virus. Utilizing our Reporter Virus platform, we will evaluate the co-evolution of endemic anti-dengue immunity against evolving dengue immunogenicity and observe dengue evolution in response to endemic immune pressure.

Parents' Social Media, and Children's Online Privacy

Robert Germann[1]
[1]SUNY Canton

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The goal of my project is to better understand the reasons why parents may post on social media items that may be a violation of their children's privacy. Currently, a significant amount of parents rely on social media to reach out to other parents in hopes of receiving parental advice. This advice can cover topics such as discipline, nutrition, academic, and even medical advice. This often results in parents sharing embarrassing photos and personal details to thousands of other social media users, usually without the child's consent. We plan on gathering data by having volunteer participants (parents of children whose ages are under 18) complete both a 27 question survey and a simulated game coded in JavaScript. The game simulates a social media website, and the player is asked to complete 5 levels. At each level, they are asked to pick one of eight photos that have scores attached to them based on how 'safe' they are to post online. Once the game is completed, the players receive their score and are asked to complete the survey. We are confident that the data provided by the participants will give us a better understanding of why parents post on social media at the expense of their child's privacy.
Presented by Anishka Mendez, Student, SUNY Canton

Quantitative PCR Analysis of mRNA for Photosynthetic Genes in Zea mays (corn).

Ms. Trinity Glover[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Quantitative PCR (qPCR) is a standard technique for quantifying specific nucleic acid molecules in mix samples or at extremely low concentrations. In this study, mRNA for the photosynthetic protein RUBISCO in leaves of corn seedlings grown under light or dark conditions (green leaves and etiolated leaves) was quantified by qPCR. Total cellular RNA was isolated from leaf tissue using silica-based chromatography. The yield of RNA was determined spectrophotometrically. Green leaf yielded 141 ng RNA/mg tissue and

etiolated yielded 115ng RNA/mg tissue. The "intactness" of the RNA was analyzed by comparing the relative abundance of the major ribosomal RNA's, the 18S and 28S rRNA, using gel electrophoresis. Intact RNA is expected to have a ratio close to 2. Analysis of the green leaf and etiolated leaf rRNA generated a ratio of 1.69 and 1.39, respectively, suggesting some degradation of the samples. Lastly, a qPCR amplification was conducted on the two samples. First, Reverse Transcriptase was used to copy the Rubisco mRNA into a cDNA template. Then a standard PCR reaction was used to amplify RUBISCO mRNA using specific PCR primers and Taq polymerase. SYBR Green fluorescence was used to monitor the amplification of the DNA. The PCR reactions amplified a product in both the green and etiolated leaf RNA samples. Gel electrophoresis of the final PCR products indicated some of the product was the expected product of the cDNA/mRNA, but some of the product was due to genomic DNA contamination in the samples. There was also substantial variation between technical replicates, complicating efforts to determine the relative amounts of RUBISCO mRNA in the two leaf types. Methods for controlling experimental variation and limiting DNA contamination in RNA samples will be discussed.

Community School Characteristics of Lafayette International Community High School

Karly Glowny[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The focus of the research was to take a deeper look at a PDS (Professional Development Schools) partner school of Buffalo State College-Lafayette International Community High School and the outreach programs the school offers to its students and families within the West Side community of Buffalo. Many people who reside in the West Side of Buffalo are immigrants. Over 12,300 refugees and immigrants who settled in Buffalo-Niagara in the past five years live in or near poverty (Numbers in Need in Buffalo Niagara, 2017). The goal of community schools is to implement strong educational programs which reduce learning gaps, enrich and expand curriculum, and strengthen parents and community engagement in school (Hunter Quartz, Daniel, Maier, 2020). Lafayette ICHS is a community school located in Buffalo. Community schools within the BPS (Buffalo Public Schools) district have a high population of students who are multilingual, many of whom are from Puerto Rico, Burma, and Somalia (2018). The methods used in the research project included a case study, literature review, and an informal interview with an ENL (English New Language) teacher who works for Lafayette ICHS. The data was collected by interviewing the teacher about the community aspects of the school. Her responses were recorded by the researcher. The final paper provides literature, data findings, and implications that uncover the community programs offered at Lafayette ICHS as well as a description and characteristics of community schools.

NFL: National Football League or Narcotics Felonies and Legal issues

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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The National Football League (NFL) is the most profitable sports league in America, so why is there so much crime involved with NFL players themselves? Players often commit crimes because the professional environment is fraught with stereotypes of addiction, gambling and domestic violence. Drugs are prohibited in the NFL, yet players still use them. Drugs and what players do when they are under the influence can cause illegal behavior and poor decisions. Does Chronic Traumatic Encephalopathy (CTE) and mental health

play a role in NFL players committing crimes? Are players self medicating for CTE, leading to their drug use? Early CTE symptoms include impulsivity, explosivity and aggression. So CTE may play a factor in NFL players committing crimes. Mental health is also a big contributor. We preach how important mental health is today because it impacts NFL players. Does geographical location also play a factor? In the 2021 season alone, the Las Vegas Raiders were known for being the most criminalized NFL team. With prior IRB approval, we will collect data from D3 college football students at a four year urban public institution and D1 college football students at a four year urban public institution. The specific focus of the data collection will be (a) perception of NFL player behavior, (b) student perception of CTE's impact on NFL players, (c) if a teams geographic location impacts the incidents of negative player behavior and will compare and contrast response from the two divisions.

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Stabilization of the Grid: Integrating Geothermal Heat Pumps, Battery, and Synchrophasors

Mr. Sean Hayden[1], Thomas Hinshaw[1], David Mraz[1], Vincent Giardiello[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This project examines the viability and benefits of paring geothermal heat pumps with battery storage for eleven residential homes and a large commercial building. The surrounding utility's infrastructure makes this project suitable for showcasing decrease in demand placed on the aging electrical apparatus during peak periods. Geothermal heat pumps are more efficient than the current traditional heating and cooling methods in place. As the batteries are paired with the heat pumps, synchrophasor technology is used with four-quadrant metering to ensure local grid stability while residents are provided ample heating and cooling during periods of high demand, power outages, and emergencies. These concepts have been applied in a simulation using authentic data in a real-time digital simulator (RTDS) using RSCAD F/X software. This demonstrates how the grid can be improved by decreasing demand and increasing reliability while measuring voltage, current and phase angle displacement at a rate of 60 samples per second. This project demonstrates the economic and electrical benefits of using the latest in technology by integrating geothermal heat pumps and battery storage for instantaneous backup, demand response, peak shaving, and energy load balancing providing a powerful use case. The project is part of senior design course sequence performed during fall 2021 and spring 2022 semesters at SUNY Buffalo State.

Is it what you think it is? Isolation and Analysis of CBD in Hemp Products

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[1]SUNY Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

"Cannabis" is an umbrella term referring to the annual herbaceous plant that is cultivated and grows wild throughout the world. The high level of biodiversity within cannabis cultivars offers multiple utilities, including use within medicine and other value-added commercial products. Research has shown that hemp cultivars, which contain higher proportions of CBD (Cannabidiol), can be used to alleviate ailments including anxiety, arthritis, and chronic pain. Due to the current regulations towards the legal use, any plants considered as hemp, and/or cannabis products sold over the counter, must contain <0.3% THC by weight. Therefore, analytical testing is routinely performed on hemp cultivars and products during manufacturing to

ensure legal cannabinoid percentages and quality control standards. The purpose of our project was to conduct quantitative and qualitative analysis on legal commercial hemp products by performing chromatographic separation and gas chromatography. A Büchner funnel (Porosity Grade 3) packed with C-18 Silica Gel was used to perform reverse phase liquid column chromatography to isolate CBD from full spectrum cannabis oil (<0.3% THC) solution. Further separation of CBD was conducted using a rotary evaporator for removal of excess solvent to purify and concentrate the compounds. Gas chromatography analysis will be performed against cannabinoid standards during each stage of the experiment to distinguish chemical profiles and replicate similar GMP (Good Manufacturing Practices).

Strategic Placement of Municipal Microgrids for Grid Resilience and Energy Democracy

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[1]SUNY-ESF

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

One of the most prevalent issues surrounding global climate change is how to facilitate the transition to renewable and sustainable energy systems. Though the necessity of the energy transition has been widely accepted in the literature, there has been much debate on how to effectively deploy renewables in a socioeconomically viable way. Microgrids, collections of load that can generate, store, and regulate their own electricity and can disconnect from the grid as needed, are becoming a frequently proposed solution in many contexts. However, renewable-based microgrids and their associated grid resilience are far from equitably distributed. Using a combination of GIS data layers and anecdotal outage data, this study aims to identify how the strategic placement of microgrids at NYCHA developments in Manhattan's Lower East Side would have impacted the population affected by power failures during Superstorm Sandy in 2012. The study found that had these microgrids been in place during the storm over 32,000 Lower East Side NYCHA residents would have had uninterrupted electricity access throughout the storm, 13% of whom were seniors possibly needing electricity as a lifesaving service. The intention of this study is to visually and numerically demonstrate the need for microgrid access among the lower income population of New York City, and to add to the academic conversation surrounding energy democracy.

RNAi-mediated degradation of the KATNIP gene in Paramecium tetraurelia.

Mrs. Kaylee Johnson[1], **Aditya Patwardhan[1]**, Megan Valentine[1]
[1]SUNY Plattsburgh

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Katanin interacting protein (KATNIP), also known as JBTS26 or KIAA0556, is a highly conserved protein in eukaryotes. In human cells it is located at the base of cilia, along the axoneme, and at the ciliary tip. KATNIP binds to microtubules and when overexpressed, it regulates their stability. A deletion mutation in the gene coding sequence for KATNIP has resulted in Joubert syndrome (JS) in both humans and zebrafish. Variants of KATNIP in conjunction with other ciliary protein variants have been associated with hypothalamic hamartoma. Both Joubert syndrome and hypothalamic hamartoma are ciliopathies affecting the brain. In this study, we used Paramecium tetraurelia, a ciliated, unicellular eukaryote, to perform RNA interference (RNAi) by feeding. We chose paramecia because they are suitable model organisms that allow us to study ciliopathies by looking at phenotypic changes. RNAi by feeding is a process that creates double stranded mRNA that the paramecia receive by ingesting the engineered bacteria. The double stranded mRNA is

released in the cell and triggers a defensive response by the cell, in turn destroying its own mRNA. To assess the level of mRNA depletion for KATNIP, total mRNA will be extracted from the treated and control cells and used for semi-quantitative reverse transcriptase PCR. We expect the degradation of KATNIP in Paramecium to result in either the loss of cilia or dysfunctional cilia, preventing or impairing Paramecium motility. Studying the function of KATNIP can aid us in understanding its role in disease and its contribution to ciliopathies.

Stereotypes, Substance Abuse, and Social Exclusion

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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Stereotyping is a common experience among racial minorities that tends to be exacerbated in college-aged emerging adults. Stereotyping is a form of racial or ethnic discrimination that can also lead to maladaptive coping mechanisms such as substance abuse. Peer victimization among racial and ethnic minorities has also been shown to have an effect on academic performance. Given the stress that stereotype-based victimization can cause, we hypothesize that individuals who experience high rates of stereotype-based victimization will be more likely use substances as a coping mechanism. This relationship may be moderated by high levels of social exclusion. Research in this area has focused primarily on adolescents. This study will extend previous research in this field to a college student population. Undergraduate students were recruited at a diverse, urban college. In order to assess stereotype-based experiences and social exclusion, the Peer Victimization in College Scale was used. Questions based on SAMHSA wording regarding drug use were included to better understand college levels of substance use. These assessments are being collected at multiple time points to gain a longitudinal understanding of the data; however for the current study, only wave 1 will be studied. Data collection and analyses are ongoing.

Rapid Identification of Bacterial Gill Disease (BGD) in aquaculture trout species

Rani Kannan[1], Sharon Restrepo[1], Kristen Schmelzle[1], Dr. Kathleen Gillespie[1]
[1]SUNY Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Bacterial Gill Disease (BGD) is a condition caused by multiple bacterial species which affects salmonids and can cause large economic losses in hatcheries. This disease is characterized by bacterial overgrowth on and fusion of the gill filaments. Infected fish will “lurk” at water inlets and have a swollen or engorged appearance to their gills. The bacterial colonization eventually causes suffocation and is especially lethal for small fish and fry. BGD prevalence is linked to water quality and is often found in hatchery tanks with recirculation systems having poor water quality. There are several bacterial pathogens which are suspected to cause BGD in brook trout (Salvelinus fontinalis) and brown trout (Salmo trutta). Die off of a tank population may occur within 24 hours of infection. BGD identification is often not feasible due to the time and cost of bacterial culturing. The goal of this research is to rapidly identify species of bacteria present on suspected infected trout using the molecular tools of Polymerase Chain Reaction (PCR) and Gel Electrophoresis. Preliminary results have identified Pseudomonas fluorescens on fish gills and tank filters. Ongoing research seeks to identify other target species (Flavobacterium branchiophila and Aeromonas salmonicida) through nested PCR targeting the 16srRNA region using universal and species specific primers. Purified PCR product will be sent for sequencing for phylogenetic and future metagenomic study.

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The Effect of Mindfulness Exercises on Sleep Duration and Stress

Hadi Khan[1], Adelina Dorazio[1]
[1]*Farmingdale State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The objective of this study was to analyze sleep and stress patterns in college students. Selected participants were asked to complete a bedtime mindfulness meditation routine throughout the duration of the study to see its effects on both. The hypothesis was that a mindfulness meditation exercise would improve students' stress levels and quality of sleep. The study consisted of 48 participants, all of which were college students at Farmingdale State College. Data was collected over two semesters, Spring 2021 and Fall 2021. Participants were randomly split into one of two groups, the control group or the experimental group. All participants first completed an initial evaluation questionnaire, which consisted of demographic questions, the mindfulness awareness scale, and the perceived stress scale. Participants were then asked to record their sleep hours and stress levels everyday for two weeks. At the start of the second week, only the experimental group was required to take part in a nightly meditation exercise before bed. The experimental group was sent a link to a 10 minute guided meditation video that they were required to complete. Both groups would continue to log their sleep hours and stress levels for the rest of the study. Sleep hours were to be rounded to the nearest half hour, and stress levels were recorded based on a preset 1-5 scale. 1 being relaxed/not stressed at all, 3 being moderately stressed but tolerable, and 5 being severely stressed and unmanageable. As we move forward, the next step will be to statistically analyze the data, and draw conclusions to better understand how mindfulness meditation exercises affect both sleep and stress.

Characterization of Quick Freezing-Induced Silver Nanoparticle Aggregates (QFISAs) Using Spectroscopic Methods

Brendan Larsen[1], Dr. Jinseok Heo[1]
[1]*SUNY Buffalo State*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Here we report the characteristics of citrate-capped silver nanoparticle (AgNP) aggregates prepared using quick freezing. A solution containing citrate-capped AgNPs with an average diameter of 70 nm was frozen in liquid nitrogen and thawed at room temperature. The quick-freezing method produced AgNP aggregates termed as QFISAs. The QFISAs were stable for more than a month if stored in a refrigerator. Our previous study showed that freezing-induced Au nanoparticle aggregates (QFIAAs) could be used as surface-enhanced Raman scattering (SERS) substrates in the near-IR (NIR) region. The spectroscopic properties of QFISA were examined using UV-Vis spectroscopy and Raman spectroscopy. Compared to unfrozen AgNPs, the QFISAs showed a shift in the plasmon absorption wavelength from 445 nm to 443 nm and an increase in the absorption in the near-IR (NIR) region. The blue shift of the plasmon absorption suggests a decrease in the size of AgNPs, and the appearance of an extended plasmon band in the NIR region indicates the presence of the freezing-induced AgNP aggregates. The Raman study revealed that the SERS activity of QFISAs is more dominant with a 532 nm laser excitation than with a 780 nm laser excitation, suggesting that the QFISA is a better SERS platform in the visible region than in the NIR region unlike QFIAAs. Nile Blue A dyes could be detected at the nanomolar concentration level using QFISAs as SERS substrate. This study shows that QFISAs can be potentially a good platform for the detection of analytes using the SERS in the visible region.

Understanding the Impact of Hydrogen Bond Donor Structure on the Characteristics of Lignin-derived Deep Eutectic Solvents

Jialong Lin[1], YunXuan Wang[1]
[1]SUNY ESF

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Various deep eutectic solvents (DESs) have been investigated to accomplish a sustainable biorefinery process. In particular, lignin-derived DES could facilitate biomass fractionation and conversion as a processing solvent. However, despite many results with the DES in biomass pretreatment and conversion, the characteristics of these DESs were not well-studied. In this study, lignin-derived phenolic monomers, including several hydroxycinnamic acids, dihydroxybenzenes, and methoxybenzenes, were selected as hydrogen-bond donor (HBD) to form DES with choline chloride as the hydrogen-bond acceptor (HBA) at different molar ratios. Effects of the HBD structural properties like the contents of hydroxyl/methoxy groups, the position of functional groups, and the length of the aliphatic chains on the DES formation and characteristics were studied. Characteristics of each DES solvent will be analyzed by DSC, TGA, and other analytical methods. The results of this study would be important for future biorefinery solvent development and applications.

Identifying Patterns in Small and Larger-Scale Changes in Water Levels in the Buffalo River

Mr. Eric Lipps[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The Buffalo River is classified as a Great Lakes Area of Concern due to loss of habitat, poor water quality, and contaminated bottom sediments. Due to the orientation of Lake Erie in the same direction as the prevailing WSW winds, persistent winds push water from the western (Toledo) end of the lake and pile water up at the eastern (Buffalo) end of the lake causing large setups (elevation changes) which in turn create surges into the Buffalo River. To understand Lake Erie wind-driven surges, including how they propagate into the Buffalo River, water level recorders were deployed at three primary sites in the Buffalo River (mouth, mid-river, and up-river) between May and early November for the period 2011-2018. Excel was used to plot time versus elevation for these data. This project builds upon previous undergraduate research projects by: 1) including data collected between 2016 and 2018; 2) examining the water level data at a finer scale to show much greater detail; and 3) comparing selected date ranges of interest in the Buffalo River to water level data for Lake Erie available on the NOAA website. This study also included water elevation data collected from two additional sites in the Buffalo River (sites located between the river mouth and mid-river) and from two sites located outside the river (Round House and Outer Harbor). Preliminary findings based on observations using the Excel plots include: 1) There is agreement in the scale and timing of water elevation changes for all five Buffalo River locations and the two sites located outside the river; 2) The three primary Buffalo River sites, Outer Harbor site, and Round House site are in agreement with NOAA data from two sites (Buffalo and Sturgeon Point); and 3) The responses to water level changes in the Buffalo River appear to be about half as large as the elevation changes occurring in Lake Erie. This presentation will show example plots from the Buffalo River and Lake Erie supporting these observations.

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Involvement of Barentsz in gurken mRNA Translation in D. melanogaster

Alexander Mathewson[1], Dr. Scott Ferguson[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The EGFR ligand Gurken is a signal molecule responsible for dorsal/ventral patterning of the Drosophila melanogaster oocyte. To generate dorsal/ventral polarity, gurken (grk) mRNA must be localized to the dorsal-anterior corner of the oocyte near the oocyte nucleus before undergoing cap dependent translation. Disruption of this cap-dependent mechanism results in ventralized eggshells. Spindle-B (spn-B) is responsible for the repair of DNA Double Stranded Breaks (DSBs) occurring during homologous recombination, initiating a mitotic checkpoint that results in the ventralized phenotype. The Ferguson Lab recently identified Barentsz (Btz) from a forward genetic screen as a suppressor of the spn-BBU ventralized phenotype. Btz is a core component of the Exon Junction Complex, but little is known about the protein's role in translation. To characterize this novel interaction between Btz and grk mRNA, ovaries from D. melanogaster containing Btz-GFP chimeric protein were dissected. The protein chimera was immunoprecipitated from the resulting lysate using anti-GFP antibodies. Quantities of grk mRNA were analyzed by performing qRT-PCR on the precipitate using osk and GAPDH as controls, but inconsistencies were present in the PCR controls, which were attributed to shortcomings in the precipitation. Western blots were then performed on the precipitate to determine the effectiveness of the antibody. This troubleshooting is still underway.

Testing the Factors that Affect Load-Bearing Capacity of Truss Bridges

Ms. Eva McCauley[1], Sean Kempf[1]
[1]*Alfred State College of Technology*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The fundamental purpose of truss formations in a bridge is to maximize the load-bearing capacity while minimizing the self-weight of the bridge. This research is divided into four main phases to holistically evaluate the factors contributing towards simple truss bridges' flexural strength and load-bearing capacity. This study's first phase incorporates a background study of simple truss systems; to provide a necessary understanding of service loads and capacity requirements. In phase II, simple truss bridges are constructed with standard popsicle sticks and glue. These popsicle-stick bridges are required to meet parameters relating to bridge length, joint size, and bridge height. In phase III, a testing apparatus is utilized to determine the load capacity (i.e., maximum load) before failure of each bridge. The final phase of this research analyzes the load failures from the testing apparatus results and determines efficiency ratings for each bridge design by relating the self-weight of the bridge to the load capacity of the bridge (i.e., the ratio of self-weight vs. load capacity). The tested load capacity fluctuations due to bridge design variations (e.g., bridge height, rise-to-span ratio, truss pattern, connection techniques) are evaluated, and conclusions are deducted for impact on maximum potential load of each structure.

Evolutionary Genomics of Meiotic Drive in T. whitei

Ms. Reghan Meek[1]
[1]*SUNY Geneseo*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Meiotic drive violates the fundamental law of segregation, changing the allele inheritance pattern from 50% to 100% of the time. An extreme sex-ratio meiotic drive (SR) trait is an X-linked selfish genetic element (SGE) which causes the carrier males to produce mostly female offspring. The presence of this SR trait has been identified in two stalk-eyed fly species, Teleopsis whitei and Teleopsis dalmanni. Recent research suggests that despite T. whitei's and T. dalmanni's close evolutionary relationship, the mechanism of the SR trait might occur differently. Prior research also suggests there are fewer genomic differences between standard T. whitei (ST) males and SR males. Together, these research findings suggest that this trait has independently evolved over time in T. whitei. Through bioinformatic methods and differential expression (Desq2) analyses in R (R 4.1.3 binary for macOS), T. whitei whole genome and RNA sequence data were aligned and analyzed to identify the differential gene coverage and expression between ST and SR males. A total of 16 RNA genes were determined to be significantly differentially expressed ($p<0.05$) for the SR trait. The location and function of these 16 T. whitei genes were then determined based on prior T. dalmanni data. To confirm and extend these preliminary findings, ten additional T. whitei genomic data sets are currently being aligned in an effort to determine what gene(s) and mutation(s) may be responsible for meiotic drive in T. whitei; and whether these gene(s) are the same in T. dalmanni. These results may indicate whether the SR trait in T. whitei has independently evolved and evolved towards more optimal fitness.

Benefits and Motives of Student-Athletes in a Leadership Development Program

Ms. Morgan Michalski[1]
[1]SUNY Geneseo

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

It can be argued that leadership and athletics go hand in hand. However, there is still little research on Leadership Development Programs within collegiate athletics. This mixed-methods study examined leadership development and the motivations for joining a Leadership Development Program (LDP) at SUNY Geneseo. The two central research questions examined: (1) What are student-athletes motives for joining the LDP? (2) And to what extent are student-athletes developing leadership skills through the LDP?
After participating in the LDP, assessments of student-athletes retrospective self-perceptions revealed a 26% increase in their confidence leading others. There was also a 21% increase in self-awareness and a 17% increase in independence. When comparing their current leadership skills to student-athletes not in the LDP, student-athletes in the LDP rated themselves 24% higher on their confidence leading others and 19% higher on their independence.
In addition, qualitative analyses of focus group data revealed three emergent themes related to joining the LDP: (a) influence of upperclassmen, (b) desire for leadership development opportunities, and (c) service to others. From these thematic findings, students involved in the LDP describe being motivated to join the LDP because they desire to help others, improve their leadership, and follow in the footsteps of juniors and seniors on their respective teams.
Together, these findings support the importance and value of LDPs in collegiate athletics. This research emphasizes the need for more leadership development programming, which student-athletes desire to obtain. Limitations and recommendations to be discussed.

The height of fame for athletes can bring the lowest moment

Dimitri Millis[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My research will call attention to the effects of fame on superstar pro athletes, who come into their professional sport young, beloved, accepted, and extremely talented but then become the center conflict and controversy in the eyes of both the media and the sports world regarding lifestyle, personality, behavior, and style of play. I will discuss two cases seen in recent documentary films: Iverson, directed by Zatella Beatty (2014) and Neymar the Perfect Chaos by David Charles Rodriguez (2022). The films follow Allen Iverson, a former professional NBA basketball player and Neymar, a professional soccer player. Both athletes come into the league at a young age possessing phenomenal talent, take their sport 's world by storm and are recognized at a national level. Although both young men are rare talents, who would live and die for their sport and love to play, they must learn to deal with the media and league controversies based on several factors. This research will closely look at the harmful effects of fame on young athletes, and how the media attempt to derail their careers while they are producing at a high level. It will consider how the defamation law works or fails to work to protect athletes from media attacks. Athlete publicity has been a rising issue in athlete branding and sport management literature. Studies have concluded that positive publicity tends to generate positive outcomes, whereas negative publicity produces negative outcomes. The longer an individual is subjected to negative publicity, the more often the public will associate the celebrity with a negative image.

Ferumoxytol with Fluorochrome-Feraheme Functionalization for Macrophage Imaging in Biological Systems

Yuriy Milobog[1], Kate Jankowski[2], Vaea R. Salt-Bernard[3], Rena Collandra[4], Yoichiro Kawamura[5], Khanh Ha[4], Chase Kessinger[4], Farouc Jaffer[5], Jason R. McCarthy[4]
[1]SUNY Polytechnic Institute, [2]Hamilton College, [3]SUNY Oswego, [4]Masonic Medical Research Institute, [5]Harvard University

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Macrophages are a type of immunine monocytes that serve roles such as protection against infections, restoration in wound healing, and homeostatic balance that occur in several intricately regulated pathways. When these pathways are disturbed, macrophages are proven to be pathogenic. Macrophages have been connected to widespread disorders such vascular inflammation, autoimmunity, and a variety of malignancies. Identifying and distinguishing macrophages from other immune cells with macrophage-specific fluorophore-labeled contrast reagents are required to see and study these pathways. Cyanine fluorophores with wavelengths of 600 to 700 nanometers are commonly employed in research; however, a current push for lower-wavelength fluorophores has led to the development of dyes with wavelengths around 500 nanometers, allowing for deeper tissue penetration. Current chemical approaches for making macrophage-sensing nanoparticles are time-consuming, low-yielding, and frequently result in unstable nanoparticles that decompose. Using EDCI chemistry, our group developed a new approach that uses ferumoxytol nanoparticles (FMX) and a unique lysine-fluorophore linker attached to the nanoparticle surface. Fluorescence and light scattering were used to characterize our new FMX nanoparticles, which generated microaggregates. Cyanine Cy-AL5, Cy-AM7, and a newly created Alexa Fluor 555 (AF555) fluorophore were produced and utilized in our work. We used UV-VIS spectroscopy to validate FMX-fluorophore labeling, which was corroborated by the respectable absorbances of numerous fluorophores. We also measured the nanoparticle diameter to ensure that this novel nanoparticle is suitable for in-vivo macrophage imaging. On in vivo near-infrared fluorescence (NIRF) imaging, FMX nanoparticles highlight macrophages and preferentially relocate to macrophage-rich tissues, according to preliminary findings.

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Poverty and hygiene in Buffalo

Mamadou Misibahu[1]
[1]*Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The problem I am trying to address answers the question; what do poverty and hygiene look like in Buffalo? I incorporated data from class notes and the book "Broke in America" to generate the information used in this research project. The authors of "Broke in America" document how hygiene is related to the low-income minority. I use this information to simplify and summarize the connection between poverty and hygiene. I walked around Buffalo to observe, and I took pictures to be used in the presentation. Two of the images will be used as a comparative basis to differentiate the situation in Buffalo. The pictures show dumping sites in Buffalo and will be used to show the hygiene problems we are facing in Buffalo. The other photos show street hygiene and water pollution in some parts of Buffalo. I concluded that proper hygiene in Buffalo is still a work in progress because of poverty, and not every individual cleans after themselves. The dumpsites are located there because the locals raise low taxes from low income, and Buffalo does not have enough money to cover the cost of a clean environment. I would recommend that new public policies be introduced in Buffalo to provide for issues like a clean and decent environment. To combat poverty, Buffalo residents should be hired to work as cleaners, we should raise awareness and donate to events to raise money to help clean our city. If there are more people in employment, more taxes are paid and cleaning services can be afforded to improve hygiene.

Why ethical hacking techniques are essential in protecting user privacy

Mrs. Shannon Molinari[1]
[1]*Suny Farmingdale*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This study examines the importance of cybersecurity standards, and ethical hacking techniques to protect the confidentiality, integrity, and availability of user data while on the internet. Technology is constantly changing. With the benefits that this new technology brings there is also great danger. Hackers and threat actors can and will use this new technology to implement passive and active attacks on companies and individual users worldwide. In order to find these vulnerabilities in software a technique called ethical hacking can be used. Ethical Hacking can be defined as, protecting user data from threat actors by finding vulnerabilities in software and patching them. This technique should also be implemented along with other globally accepted standards for cybersecurity, like National Institute of Standards and Technology (NISK). The NISK Framework is a set of guidelines and best practices that are cost effective and allows to data management. Data will be collected by giving a series of tests to companies that have and have not implemented ethical hacking techniques and the standard cybersecurity practices to investigate who has better security. Data analysis will be collected with graphs, such as pie charts to indicate what type of virus, worms, and etc. have infected the system and then determine what company has improved security. While the results are pending it is imperative to note that both ethical hacking and the globally established standards will help to protect a system, but not make it one hundred percent secure, as there is no such thing. The conclusion from the study will contribute to helping companies and therefore society realize that the use ethical hacking techniques and cybersecurity standards will help to best protect user data.

Comparison of Commuters' versus Residences' College Experience

Emily Newell[1], Andrea Newell
[1]*SUNY Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This study is designed to examine the relationships between choice of residence and academic performance, social life, and personality of students at Buffalo State College. Students will complete a Qualtrics questionnaire. We predict students who commute will show both enhanced academic performance and time management skills. We believe this is due to commuters having fewer dorm-related distractions and the need to manage their time better due to being more involved in off-campus activities/working more hours. Overall, we predict there will be an even distribution of extracurricular activities among both commuters and dormers, with commuters more focused on off-campus activities. Due to their on-campus focus, we predict that students who live on campus will make more new friends than those that commute. The project has been submitted to the IRB and it is anticipated that the data collection will begin soon.

Tubby-like Protein 3 (TULP3) degradation in Paramecium tetraurelia via RNA interference

Hoang Nguyen[1], Megan Valentine[1]
[1]*SUNY Plattsburgh*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Paramecium tetraurelia is a ciliated unicellular eukaryote whose genome contains more than 40000 genes. The genomes of numerous Paramecium sp. have been sequenced and annotated, providing an enormous gene bank that can be used to search for homologous sequences. In this study, the P. tetraurelia genome was searched for homologs to tubby-like proteins 3, and 1 (TULP3, and 1). In Homo sapiens, the TULP3 protein is one of the key regulators for developmental and signaling pathways. Here, Paramecium tetraurelia were exposed to double-stranded RNA targeting a potential TULP3 gene to induce RNA interference (RNAi). Through RNAi, the mRNA transcript for TULP3 should be degraded. The effectiveness of the RNAi will be examined by extracting total RNA and performing semi-quantitative reverse transcriptase PCR. The swimming patterns of the cells will also be examined. It is hypothesized that the depletion of the potential TULP3 protein could alter cell development and cell signaling, which could result in a decreased cell size compared to control cells. In addition, underdeveloped cilia, or even altered cell behavior may be observed. These experiments may lead to a better understanding of the importance and role of TULP3 in a single cell.

Metal on N-Doped Carbon Catalysts for Aerobic oxidation of 5-hydroxymethylfurfural

Liam O'connor[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Heterogeneous aerobic oxidation reactions are important for synthesizing value-added chemicals from petroleum and biomass-based materials. Herein we employed electrocatalysts consist of metal on the N doped carbon (M-N/C), which were found to be active in reducing oxygen in fuel cells for the aerobic oxidation of 5-hydroxymethylfurfural (HMF) to 2,5-diformylfuran (DFF) in an organic solvent. We found that

the Co based catalyst performed the best among the studied metals, whereas polyaniline was the most active nitrogen source. kinetic analysis revealed a first order rate dependence on [HMF], whereas absence of any active metal sources in the filtrate after hot filtration test and 4-step reusability of the catalyst conformed the heterogeneous nature. This study ventures for direct implementation of fuel cell based electrocatalysts for oxidation catalysis in practical organic reaction conditions.

Pandemic Experiences and College Students' Self-Reported Functioning and Well-Being

Vianne Palad[1], AnnaMaria Bonventre[1], Kaitlyn Bjelko[1], Yesha Marfatia[1], Dr. Andrew Christy[1]
[1]SUNY Plattsburgh

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Two surveys examined how students' experiences during the COVID-19 pandemic were related to their self-reported academic, social, and emotional functioning at college, and to their self-reported well-being. A preliminary survey conducted in Spring 2021 (N = 81) found that pandemic-related financial stress was associated with reduced functioning in all three domains, and with lower well-being in general. Other pandemic-related experiences (including loss of a close other, severe illness, quarantining, and proportion of remote classes) were not associated with adjustment outcomes in the initial sample. A second survey conducted in Fall 2021 (N = 187) replicated the original results for pandemic-related financial stress, and also found that losing a close other to COVID-19 predicted reduced emotional functioning. The degree to which students had limited their normal activities during the pandemic was also associated with reduced academic, social, and emotional functioning and well-being, and the perceived seriousness of the pandemic was negatively correlated with social and emotional functioning. Further analyses tested whether Big Five personality traits and various coping strategies moderated any of the observed relationships between pandemic-related experiences and students' functioning and well-being. For the most part, these analyses did not implicate personality traits or coping strategies as moderators, but some interactions were observed, indicating that relationships between some pandemic-related experiences and certain aspects of students' functioning and well-being differed depending on their specific personality traits and/or coping strategies. These findings shed light on what parts of the pandemic have been particularly challenging for college students, and also provide some information about individual differences associated with more vs. less resilience to these challenges.

Optimization of 3D Printing Parameters as Tested on PLA

Joseph Pepitone[1]
[1]SUNY Maritime College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This engineering research project attempts to optimize how objects should be 3D printed to provide consistent strength for tensile, compressive, and bending loads despite varying printing parameters. This will provide students with reliable values they can use to size parts in their design courses. Specifically, this project will address parts made through finite deposition modeling (FDM) on small, hobby-grade printers. The most common material used in FDM is polylactic acid (PLA) and the mechanical properties for solid, uniform specimens of PLA are well known. An FDM model will have a variable density and pattern used for infill. Even if the printer attempts to make a solid part, the result will have anisotropic mechanical properties due to how additive manufacturing works. The objective of this project is to determine what is the most effective infill pattern, infill density, layer height, orientation, wall thickness,

and top/bottom thickness for printing the strongest object. This problem was analyzed through a fractional factorial experimental design by creating an L18 array, then 3D printing specimens for a tensile test, a double shear test, and a three-point bending test. These parts were then tested on Instron 300DX machines in the SUNY Maritime Strength of Materials Laboratory. This data can be used to determine the most effective way to produce a product through finite deposition modeling for a specified purpose. This experimental process can be applied to other finite deposition models and materials as well to optimize them.

Chemical Analysis of THC and CBD in Hemp-infused Beverages and Mixers via Gas Chromatography

Colby Riexinger[1], Jamie Kim[1]
[1]Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Although many states, including New York, decriminalized the possession and personal use of marijuana, tetrahydrocannabinol (THC) is still listed as a Schedule I drug according to the Drug Enforcement Administration (DEA). Therefore, commercial cannabis products such as hemp oils and beverages can't contain THC higher than 0.3%. In this project, we monitored the concentration of two psychoactive components, THC and cannabidiol (CBD), present in five hemp-based beverages by the use of gas chromatography (GC) and standard materials. Our GC data showed that various amounts of CBD were detected in these samples, but THC was not found in any of the samples. In addition, the amounts of CBD in the products were different from those claimed by manufacturers.

Bioluminescence Bacteria Isolation from Squid for Identification of LuxAB genes

Ms. Katherine Romero[1], Ms. Madison Blood[1], Dr. Kathleen Gillespie[1]
[1]SUNY Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Bioluminescence is the process in which specific microorganisms emit light and it is commonly seen in marine environments. This is because bioluminescence results from a symbiotic relationship with bacteria and marine species such as fish, shrimp, and squid. The Lux operon is responsible for this light production, where the enzyme luciferase oxidizes with the substrate, FMNH2. The LuxAB gene sequence encodes for the luciferase heterodimers, ultimately resulting in light emission. To confirm the presence of the lux genes from marine bacteria isolated from a squid species, first microbial cultivation techniques were utilized. Two marine media (Luminous agar (LA) and BOSS agar) were plated to assess efficiency of growth and light production. The LA agar plate inoculated with squid ink was found to be more suitable than BOSS plates for identifying bioluminescence. Bacterial colonies that displayed the maximum light intensities were selected and re-isolated on LA agar plates. Colony Polymerase Chain Reaction (cPCR), where the DNA is extracted from a single colony by heat lysis, was performed with LuxAB primers and imaged by gel electrophoresis. The PCR products were purified, and samples sent for sequencing. The intent of future studies will be to isolate plasmid DNA for confirmation of the Lux genes, and examine the possibility of creating recombinant DNA Lux vectors.

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Pretreatment and fiber decomposition analysis of Cannabis sativa L

Sarah Schmidlin[1], Lily Connerton[1]
[1]*SUNY Geneseo*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Hemp, along with marihuana, are subspecies of Cannabis sativa L. The two differ in chemical constituent levels of delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). Hemp contains 0.3% THC, compared to marijuana's THC content of 17.1%, allowing it to be a safe and compelling biomass for investigation. Hemp is one of the fastest growing plants and its refined products have immense commercial value, including biofuels, biodegradable plastics, textiles, dietary supplements, paper, clothing, and much more. Construction and manufacturing applications have also been seen to include hemp to strengthen their composite products. Hemp is a high yielding, sustainable, and environmentally friendly crop due to its various qualities, and has the potential to yield valuable raw materials for a great number of applications. Our research evaluates the pretreatment of hemp as well as the comparative analysis of the fiber content with the goal of determining the suitability and the potential use of an ionic liquid-based pretreatment (1-butyl-3-methylimidazolium chloride) for the breakdown of hemp lignocellulosic biomass.

What does poverty and housing look like in Buffalo?

Grace Sforza[1]
[1]*Buffalo State*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My research project question is "What does poverty and housing look like in Buffalo?". Homelessness is a huge problem in the US today, and the government does virtually nothing to help it. The government spends so little on programs to help make housing available for low-income people. It is inevitable that this imbalance will cause more homelessness, as well as people settling for poverty-quality homes, going without food and other essentials, and living in situations where they are victimized. The format that I will be using to answer my research question is Photovoice. Photovoice is a good way to provide a voice to the people who need it and to spread awareness about the issues they are facing. This allows people in the community to become more involved in what goes on in their community. The photos relate a lot to what the literature is talking about. Homelessness is a huge problem in Buffalo. There are not enough shelters for people in need. Looking at research done for homelessness and housing crisis statistics in Buffalo and surrounding areas between 2010-2017 it showed that almost 50% of people are homeless. This project is going to show the struggle that people have when it comes to finding housing. My hope for this project is that it will hopefully raise awareness to the struggle people face when it comes to finding a home, and that it will make people want to become more involved in finding a way to help the community.

Relation between Stress, Impulsivity, and Online Academic Performance during the Initial Quarantine for Covid-19

Mr. Brendan Silva[1], Dr Michael MacLean[1]
[1]*SUNY Buffalo State*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

With the pressures of online learning caused by the global pandemic, stress through college reached a unique high with the pressures of teaching oneself thoroughly while isolating from the deadly virus. Prominent stressors to keep in mind are the socially isolating scenarios and the worry about their loved ones and their own health, pre-vaccine. This study looked at the effect that these unique stress levels had on distress impulsivity and online academic performance. Distress impulsivity is defined as the tendency to act without considering long-term consequences when in a distressed emotional state. While it is known that stress can lead to impulsive behavior, it is not known whether this mediates the relationship between stress and academic performance, particularly regarding online academic performance. Data were collected from 55 college students (18-27 y.o., 77% female; 42.6% Black, 27.9% White, 11.5% Hispanic, 9.8% Asian, 8.2% Mixed) participating in a longitudinal study. Only Time 1 data were included in the present study. Our results showed a significant positive correlation between perceived stress and distress impulsivity($r=.39$) indicating that the more stressed one is, the more likely the individual is to act without much forethought. A significant negative correlation between stress and online academic performance was found ($r=-0.33$). However, the negative correlation found between distress impulsivity and online academic performance ($r=-0.12$, $p>.05$) was not significant, indicating the relationship between perceived stress and online academic performance is not mediated by distress impulsivity. The findings indicate that stress has a meaningful detrimental effect on college students' academic performance, which may have been heightened during the covid pandemic, but individual differences in impulsivity when distressed do not seem to be involved.

The Importance of Play in College Students

Ms. Chelsea Simmeth[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This research examined the role of play in Higher Education and how college educators use play in their curriculum to increase student's creativity and learning (Forman, 2018). The poster presentation will provide literature that uncovers the benefits of play in college curriculum and practical ways to incorporate it into a college classroom. Play is thought of as "childish," but this research is to show that play should be used in adulthood as well. Play plays an important role in how someone learns and their experience with learning. Play in the teacher education program can model these benefits for teachers to use in their own future classrooms.
This project focuses on play in the college environment and how college educators use play in their curriculum to increase student's creativity and learning. Play has an important role in how one learns and how they experience learning. Teachers and teacher candidates can model these activities and styles to see the benefits in their own classroom.

Using Burke's Rhetorical Theory to Explore Banksy's Rhetorical Act

Sarah Slack[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Using Burke's theory of Dramatism, this paper examines the rhetorical act created by Banksy in 2008. Nola, a young girl painted solemnly on an abandoned building wall in Marigny, New Orleans is one of several anonymous pieces created by the elusive Banksy three years after the impact of Hurricane Katrina. The historical context portion of this paper will examine the background of the rhetor to establish what might have led to the creation of this piece. The critical analysis section will explore Burke's theory of Dramatism,

looking at the key concepts of the theory as well as examining how previous studies have used this theory. The rhetorical analysis portion looks at some of the connections between Banksy's piece and Burke's rhetorical theory. Finally, the paper looks at the importance of this theory in future studies, and how essential the role of motive is to an audience.

How Music Activities Enhance Literacy Development

Brianna Smith[1]
[1]SUNY Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This research project is significant to the field of education because many researchers have found connections between music and literacy development. Music contains elements that are beneficial to beginning and emergent readers such as rhyme and rhythm and allows for children to connect it to their lives. Music is described as a language of learning that evolves into children being able to think and communicate, and more significantly, being able to read and write. Because it provides enriching experiences that children can relate to their lives, children will be able to express their experiences while simultaneously promoting language experiences. In my research, I was able to see how teachers implement music into their literacy instruction. I examined resources that are available to teachers, and how effective they are in literacy development, specifically phonological and phonemic awareness. I viewed data on how music affects literacy instruction for students who are English Language Learners, as well as analyzed ways in which teacher candidates can successfully implement music in their literacy instruction. Through conducting interviews of teachers with backgrounds in both music and literacy, I was able to compile a list of resources that teachers and teacher candidates can utilize in their instruction.

Diverse Housing

Hsakprue Soe[1]
[1]Buffalo State

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My research question is what does poverty and housing look like in Buffalo. Throughout the United States housing crisis is not something new. It had always been in issue homelessness is very common and can be seen throughout almost every major city in America. For most people it’s between either eating or paying rent, people don’t make enough to find a place, wages have only gotten up 10% between 1973 to 2017 and yet rent and house prices are sky rocketing. To obtain my information I used the research method of photovoice, which is participatory research, advocacy, and a call-to-action examples of these are providing individuals who live in poverty or dealing with social issues cameras where they can document their day-to-day life on a real-life experience. In my research I took pictures of how housing is a problem in Buffalo. My pictures show the diversity in how housing looks in Buffalo where on one block it has big, beautiful houses then you go a couple blocks over and you see houses where it’s beat up and not well-maintained. Over 30% of people in Buffalo us living in poverty and those are the ones only the census was able to document. In Buffalo and throughout the United States housing is a common struggle that should be better addressed. Through my research and photovoice I hope to bring attention and awareness of how housing is an issue within our country and local community.

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Multiplex PCR for Triploid Identification in Grass Carp Tissues

Ms. Michaela Stachowski[1], Ms. Hayleigh Durfee[1], Ms. Stephanie Cuomo[1], Ms. Kaylin Klein[1], Mr. Mark Whittmaker[1], Dr. Kathleen Gillespie[1]
[1]SUNY Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The grass carp (Ctenopharyngodon Idella) is an invasive species present in North America. Hatcheries control the population of grass carp by the artificial induction of the triploid state, which prevents the grass carp from reproducing in the wild. A triploid grass carp contains three sets of homologous chromosomes (3n) compared to the usual grass carp that have only two chromosomes and are called diploid (2n). The triploid state causes them to become sterile as their lack of homologous chromosomes prevents pairing during meiosis. Triploids occur by preventing the second meiotic division of the egg, or the escape of the second polar body shortly after fertilization. The two methods commonly used in aquaculture to induce the triploid state in embryos are heat shock and pressure, which is verified in mature fish using flow cytometry or karyotyping. Except for the extra chromosome set, triploid grass carp are identical to diploid grass carp. Our concurrent research project is examining the use of genetic tools for the identification of the triploid state at the embryo and fry stage in trout species. The identification of triploid chromosomes in different tissues in grass carp is not well studied. This research project utilizes the known triploid state of the grass carp to confirm its presence in tissues, using multiplex PCR with capillary chromatography. For future analysis, the development of specific primers will be matched to selected tissue types and optimized with multiplex PCR in agarose gel electrophoresis.

Education Outcome in Westchester County; The Role of Socioeconomic Status and School Funding

Mr. Xu Tan[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

This paper aims to examine the factors contributing to the educational gap between high and low-income families in Westchester County, New York. Using math and reading test scores of total 115 elementary schools in 26 out of 43 public school districts at Westchester County, I explore the relationship between students' performances and financial and educational resources of individual schools. I also analyze the relationship between student's performances and their parental socioeconomic status. The results show that the socioeconomic status is the most relevant predictor for education outcome. In addition, income segregation between school districts has also contributed to the racial achievement gap. Results show that Hispanic families are more likely to live in a district with concentrated poverty and underfunded schools.

NAD+ dependent deacetylase Sir2 regulates transcription factors in response to low NAD+ in yeast K. lactis

Ms. Serena Teh[1], Mahasweta Acharjee[1], Dr. Laura Rusche[1]
[1]University at Buffalo

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The NAD+ dependent Sir2-Sum1 complex in budding yeast regulates transcription by repressing gene expression in high NAD+ levels. Since NAD+ is a common metabolite, the Sir2-Sum1 complex acts as a sensor to regulate gene expression in response to nutrient fluctuations. We studied two yeast species, Saccharomyces cerevisiae and Kluyveromyces lactis, that have different strategies for generating NAD+. S. cerevisiae is a NAD+ prototroph which can synthesize NAD+ whereas K. lactis is a NAD+ auxotroph which lacks genes required for NAD+ biosynthesis. Without this ability, K. lactis experiences higher NAD+ level fluctuations than S. cerevisiae. Interestingly, although some targets of the Sir2-Sum1 complex are shared between these two species, in K. lactis the Sir2-Sum1 complex regulates additional genes, including 13 transcription factors that are not regulated in S. cerevisiae. To investigate the role of these transcription factors in K. lactis, we cloned them into expression vectors which linked them to a V5 tag, and used ChIP-qPCR to examine their binding sites. We aim to characterize the targets of these transcription factors using ChIP-seq and determine their role in NAD+ regulation. We hypothesize that these transcription factors self-induce to cause long term expression or repression of their target genes which helps stabilize the gene expression profile and prepare the cell for future low NAD+ stress. Hence, the target genes show how the rewiring of the Sir2-Sum1 complex in the NAD+ prototroph S. cerevisiae and auxotroph K. lactis allowed each species to evolve distinct responses to nutrient fluctuations.

Assessment of Body Condition Score and Ketone Levels in Early Lactation Dairy Cows

Ms. Morgan Terry[1]
[1]SUNY Cobleskill

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Ketosis is one of the most challenging metabolic disorders affecting dairy cattle. While a great deal of research has been conducted pertaining to the diagnosis, treatment, and prevention of the disease, debates continue among scholars regarding best practices. During the current study we measured ketone levels in early lactation cows (n=15) by assessing blood samples (Precision Xtra Blood Ketone Meter, Abbott) and milk samples (Keto-Test milk strips, Elanco Animal Health). Additionally, we evaluated cow body condition scores (BCS scale 1-5, Elanco Animal Health) and other health parameters. Data was collected from cows once a week for 5 weeks. Milk was collected from each teat before milking and blood samples and BCS were collected once the cows returned from the parlor. Preliminary results showed that cows ranging 14-21 Days In Milk (DIM) possessed higher levels of ketones and lower body condition scores over time. Correlations between ketone levels and BCS were observed as 56.76% of the cows had a BCS of > 3.5/5.0 and 33.33% of those cows displayed subclinical or clinical ketosis. Conversely, 43.24% of the cows had BCS < 3.5 and 50.00% of those cows displayed subclinical or clinical ketosis. These findings suggest that thinner cows had a greater incidence of ketosis during early lactation. Additionally, we found that cows naturally lost body condition during the first few weeks of lactation, but that ketosis could be managed if BCS and feed intake were closely monitored. While all data has not yet been analyzed from this study, we can see a clear relationship between fresh cow BCS and ketone levels. This information may help dairy producers recognize ketosis sooner and facilitate feed changes to prevent more serious disease. However, additional research is needed to confirm these findings.

Permanence

Jack Thomas
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The objective of this fashion design project is to discover and experiment with architectural methods in order to fulfill the goal of devising a new formulation for slow fashion. As well as solving the problem of extraneous waste fabric by re-incorporating it onto the garment for strength and longevity. I am integrating golden proportions and Le Corbusier's regulating lines as well as architectural gusset plating in my collection. The techniques employed for measuring the size, shape, and cohesive structure of form in garments, so that it is pleasing to the eye, will serve as an abstract aspect to convey enduring silhouettes as architecture relates to permanence. The Parthenon in Athens is a main touchstone reference for this collection as it is known in the architect's world as a manifestation of architectural perfection, which is a testament to the idea that architecture is the most permanent art form. The gusset plating is used to change the material reality of garments to lengthen their resistance against external abrading factors on the posterior chain of the human body. This will take place when leftover materials are sewn into the backs of the garments to add a protective layer to preserve a longer lifespan. This is the material vector of fulfilling this objective which relates to "permanence" as they are likely to last forever because of this implementation of plating. The significance of this endeavor has been to assimilate architectural proficiencies to form an abstract aesthetic which represents its objective. Along with formulating a nuanced design for fashion that can prolong the longevity of garments in order to act as a countermeasure and precedent against fast fashion which corrupts the industry and harms the environment.

Buffalo Music Memorabilia Database

Nguyet Que Tran[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Data is an important asset of every company or organization. Providing a database management system so that users can access, update or edit data is one of the fundamental goals of an organization. This project is part of a database system of the nonprofit organization called Buffalo Music Hall of Flame (BMHOF) which was established in 1983 as a part of the Buffalo Music Awards. The mission of BMHOF is to honor, preserve, and protect the diverse musical culture and heritage of Western New York through education, scholarship, and performance. The organization also recognizes, via formal induction, those individuals and groups who have made a significant impact on the music scene. Their data is divided into three main groups: Inductee Database, Nomination Database, and Memorabilia Database. The purpose is to build a database system that links all of these three main databases together, increasing interactivity to support users in using, processing, and updating data in a user-friendly environment with easy-to-use features. The current research project will focus on the Memorabilia Database which contains information about all authentic and classic musical items such as instruments, recordings, photos, posters as well as items of clothing. Oracle Axpec and SQL are used for back-end data processing; the project will also create a front-end application so that the users can interact with data with optimized timing.

The Relationship between Socioeconomic Status and Food Reinforcement

Ms. Aimy Vadeboncoeur[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Socioeconomic status (SES) has a significant impact on several spheres of life. Previous studies have found that higher SES in an adult population was related to a healthier dietary pattern. Thus, SES would be an important factor for the development of healthy eating habits. Also, among women, high childhood SES would be a predictor of healthy food intake in adulthood. The present study aimed to better understand the

impact of SES on anxiety and food intake. It was hypothesized that people with a lower SES will be more motivated to obtain unhealthy food than people with a higher SES. The participants were composed of a heterogeneous sample of 71 adults aged between 18 and 50 (M =21.20, SD = 5.85) of whom 22.54% were male. Participants came into the lab and were split into two groups, stress, or no stress. For the stress condition, participants underwent a mock job interview and in the no stress condition, they sat quietly. After the stress or no stress, participants played a computer game where they worked for portions of either a healthy or unhealthy food item or reading. The more times they clicked the mouse button, the more portions they received. The hypothesis was partially confirmed. There was a significant negative correlation between SES and clicks for either healthy or unhealthy food intake ($r(64) = -0.31$, $p < 0.05$). We also found a significant negative correlation between SES and clicks for reading ($r(66) = -0.34$, $p = 0.01$). Finally, a significant positive correlation was found between SES and the second systolic blood pressure measure ($r(66) = 0.24$, $p = 0.05$). The present study showed that people of lower SES tend to work more for either food or reading.

Rerooting Innovation

Jessibel Velazquez[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My S/S 23 collection interprets the theme “Push for Progress” by demonstrating a need for change in over-consumption and overproduction in the fashion industry.
We currently live in a world that is constantly driven to change. Coupled with fashion brands that reinforce the more-is-more mindset, many people may find the need for new items that aren't entirely necessary. This results in many products being poorly made, furthermore, losing their purpose and functionality for the long term, being converted into waste as quickly as they were produced and launched. This excessiveness has been causing huge sustainability issues for quite some time. Many may place the blame solely on fast fashion brands because they are producing products quicker and of poor quality. However, this is a problem that also includes luxury brands that may get rid of quality clothing in an unsustainable manner to avoid losing their brand image with price reductions or sales.
The climate change crisis is only accelerating and we can observe this with recent extreme weather events such as rapid melting glaciers like West Antarctica’s Pine Island glacier that has only been speeding up since 2017 according to NASA. Natural disasters such as hurricane Delta and Laura that devastated Louisiana in 2020 and tsunamis such as Selta Sunda that devastated India in 2018 to name a just few. These extreme weather events are becoming harder to ignore and calls for a more drastic effort before it’s too late. It’s more important now than ever for companies, young designers and individuals to act together.
My collection focuses on convertibility and innovation with intentional design. This will be demonstrated through combining fashionable convertible pieces with soothing and sustainable colors, fabrics and silhouettes. Layering core items that show naturalistic elements that promote nostalgia of a healthy planet that was, and will hopefully become, with highly functional and well-made mix-and-match pieces that will truly grow with the wearer. This concept connects to the WGSN theme "push for progress" for S/S 23.

ICK in Paramecium: Suppression of a ciliopathy-associated gene through RNAi

Michael West[1], Amoni Kalagbor[1], Dr. Megan Valentine[1]
[1]SUNY Plattsburgh

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

Cilia, appendages that extend from a cell, are essential to many cellular functions, including the movement of bodily fluids, cell signaling, and organismal development. Dysfunction in cilia leads to numerous diseases and developmental abnormalities; collectively, these defects are referred to as ciliopathies. The construction, length, and preservation of cilia is maintained by the intestinal cell kinase (Ick) gene through the ciliary transport system, called Intraflagellar transport (IFT). Point mutations in the Ick gene result in build up or lack of IFT proteins and potentially lethal deformations of cilia. An absence of Ick deforms sperm flagella and decreases sperm production in adult male mice and mutations of Ick cause a plethora of developmental defects including deafness, formation of extra fingers or toes, and distortions of brain and facial structures. The Ick gene is highly conserved, including a potential homologue in the ciliated protozoan, Paramecium tetraurelia. Paramecia are easily reared and manipulated in laboratories. The abundance of cilia on their bodies and over thirty ciliopathy-associated genes contained within their genome make Paramecium a valuable resource for ciliopathy studies. In this experiment, we will be suppressing a potential Ick homologue in P. tetraurelia through RNA interference (RNAi) by feeding. RNAi-fed cells will be examined using swimming assays and Ick RNA levels will be examined using semi-quantitative reverse transcriptase PCR. We expect to observe a shortening of cilia and areas devoid of cilia. The lack of cilia should greatly impede locomotion and the ability to acquire food when compared to control P. tetraurelia. The results from this study may provide new insights into the importance of Ick in a single-cell system and the alteration of cilia and their contents.

The Psychological Effects of COVID-19 on College Students

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[1]*SUNY Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

The unprecedented nature of the COVID-19 pandemic has dramatically increased the challenges faced by college students. In order to ascertain the effects upon their mental health, this study investigated potential associations between anxiety, depression, and schizotypy in college students as well as how individuals' concerns about COVID-19 may have impacted these mental health issues. In addition, this study examined whether individuals' exercise habits affected their COVID-19 concerns. Participants were undergraduate students recruited online from Buffalo State College during the Fall 2021 Semester. In total there were 123 students, consisting of 18 males and 105 females. Participants were instructed to complete a questionnaire in which extra credit opportunities were offered. Following consent, participants answered demographic questions and then questions regarding their level of anxiety, depression, and schizotypal behavior, as well as their worries related to COVID-19. Additional questions on other topics were also included. Strong correlations between anxiety and schizotypal behavior, depression and schizotypy, as well as anxiety and depression were found. Additionally, there was a positive correlation between worries about COVID-19 and schizotypy as well as symptoms of anxiety.

Food: A need well deserved

Ms. Claudia Williams[1]
[1]*SUNY Buffalo State College*

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

My research question is, what does poverty and hunger look like in Buffalo, NY? Poverty is much more than not having enough money for basic needs such as food, clothing, and shelter. Poverty is hunger, lack of shelter, lack of access to health and education, lack of freedom and the list continues. As of right now, 30.1% of the population for whom poverty status is determined in Buffalo, NY. Seeing it in a different

aspect, 74.6k out of 248k people live below the poverty line. 12% of Erie County is food insecure. There are approximately 100,000 people in Erie County who live off SNAP benefits. Food hunger is a big issue nationwide, but even thinking or seeing the food hunger rate is absurd and inspired me to obtain knowledge in seeking to bring about change in communities. I will be doing that by using photo voice. The photos that I chose emphasizes things that we can do as a community to help. Things such as provide food pantries in areas in which have high poverty rates and donate to nonprofit organizations or any other foundations that are in full support of feeding people of hunger.

The Language of Melodies

Cyler Witherspoon[1], Isabella Sciortino[1]
[1]Buffalo State College

Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

No matter what language you speak or how many you know, everyone can understand a melody. Learning notes and songs are the same for everyone. Musical notes are configured in unique arrangements, using harmony, dissonance, time signatures and rhythms, communicating in a language without the use of lyrics. Music is used for enjoyment, celebration, ceremonial rituals, and expression of emotions. Sources suggest that analyzing a song's features makes it possible for a person to understand a melody's meaning regardless of the person's culture and language. Is the way everyone learns to create music the same? And is music actually a universal language? Music goes beyond the conscience to the unconscious level of the soul. While it will be interpreted differently by anyone who listens, the internal feeling will be similar for each person. For example, anyone listening to a movie score can hear what the music is saying, even when lyrics are not used. With prior IRB approval, using a sample of convenience of first year college students in a four year urban public college in upstate New York, participants will be surveyed to listen to four pieces of instrumental music. The participants will be asked (a) if they recognize the piece and where it is from, (b) to describe their emotional response, and (c) to write a sentence summarizing what the music is saying.

Rubber Sidewall Alignment Design For Motorcycle Tires

Mr. Scott Zeitz[1], Shihabeldin Abdelhamid[1], Okyere Akuoko[1]
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Poster I, SAMC Atrium, April 23, 2022, 9:30 AM - 10:30 AM

We are working with Sumitomo Tire to design a better way to apply sidewalls to their different sized motorcycle tires. The machine we will work on currently has four plates with two plates on each side that align the rubber strip to the tires. In the middle of the two plates there is a center flap that holds the rubber strip down to straighten it out. In the front of the machine there are three lasers that indicate the center of the tire and the inside of where the sidewalls will be applied on each side. Currently the operator of the machine has to put his hands in the machine and adjust each plate and the center flap individually which is dangerous and inefficient. Our design will have a dial labeled with each tire size so that as the operator turns the dial, each of the plates will move and adjust to a specific size. Our design will have threads in each plate where two of the plates will have reversed threads since each side will have to move in different directions to adjust for the tire sizes. The center flap will be connected to the two plates on each side so that everything will move at the same time. This way we can have a threaded rod in the middle that gets turned with the dial and both sides will move in towards each other for smaller tires or away from each other for bigger tires. This design will be safer since the dial will be off to the side instead of having someone reach into the machine. The design will also be more efficient since everything will move together with one turn of a dial instead of adjusting each part at a time.

Threats and Damages of Cyber Intrusion.

Mr. Aaron Abdullah[1]
[1]*Farmingdale State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Cyber intrusion is one of the biggest threats to the cyber industry. Reconnaissance activities must be practiced by organizations themselves, for better understanding intrusions and preventing them by finding and patching the vulnerabilities. Cyber intrusions are extremely dangerous, with the ability to cause severe damage once the control has been gained of the system. Different kinds of technological systems are developed to prevent intrusions, such as firewall, intrusion prevention system (IPS), intrusion detection system (IDS), and more, but still not perfect enough to keep the systems a hundred percent safe. However, it keeps the system secure for a great deal. For better understanding, I will use an example of cyber intrusion to substations affecting the power grids. Power stations are one of the most high-risk places because targeting multiple substations can lead to a complete blackout for a long time. It is dangerous since almost everything nowadays runs on power, and not being able to be aware of your enemy's position gives them the benefit of infiltrating without being recognized or caught. Government organizations are not the only ones affected, but the hospitals are affected as well since all the data is saved on a cloud-based server, and for access you need power, making them vulnerable to treating their patients accurately or patients dying mid-surgery because of the loss of power, even though they have backup generators, they tend to fail as well or cannot provide to the whole institute, only the places considered crucial by the institution.

Jazz Impact: Duke Ellington's Black and Tan Fantasy

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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Duke Ellington's (1899-1974) Black and Tan Fantasy was one of his most influential pieces. He composed this piece in 1929 at the beginning of his success. The virtuoso pianist had just gained residency at the Cotton Club, Harlem's iconic Jazz Age night spot. Duke Ellington's residency at the Cotton Club had a huge influence on Black and Tan Fantasy. The Cotton Club's jungle theme contributed to Ellington's formulation of an exuberant musical style known as "Jungle Jazz". The resident ensemble's performances were extremely theatrical at this time, including dancers and singers that presented a narrative floor show to illustrate the music. During the 1920s, Ellington developed his composition style with powerful themes and colorful orchestral frames—raucous or piercing brass mutes, strident reed mixtures; unveiling an entirely new tonal palette. The tone and color of the piece erupts is often described as guttural. Bubber Miley, played trumpet with a plunger mute in a raspy manner, and Tricky Sam Nanton was the trombonist on this piece, his playing invoked the sound of the human voice. These two musicians impacted the tone and color in the Duke Ellington's musical style. My project explains how Black and Tan Fantasy impacted Ellington's future composition, "Black Brown and Beige," a distinctive example of the classic American genre known as symphonic jazz. I will analyze what musical compositions Ellington borrowed from, and how Ellington greatly impacted classical and American popular music.

Isolation and Characterization of novel Mycobacteriophages from Long Island soils

Ms. Bhavya Arora[1], Waris Mirza[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Mirza, W., Arora, B., Ahmad, H., Aziz, M., Badalov, M., Bouklas, T., Charradi, S., Diaz, S., Douglas, Y., Evangelista, N., Gany, M., Hussain, S., Johnson, M., Nasr, K., Nieto, F., Reddy, R., Salman, N., Sanon, R., Shahzad, Z., Singh, G., Yagudayeva, E.

As part of SUNY Old Westbury's participation in the 10th cohort of the SEA-PHAGES program, students in the General Biology Laboratory I section isolate and characterize Actinobacteriophages from local soil samples. This is the fifth year since the program was integrated into Basic Biological Sciences I Laboratory (BS 2401) and the bioinformatics component to the Basic Biological Sciences II Laboratory course. Herein we report the results of our Phage Discovery experience in the Fall 2021 semester. The course enrolled 18 students. 9 different phages were isolated and purified at SUNY Old Westbury. Each mycobacterial phage and its appearance and titer from different soil samples were observed to compare and determine possible similarities and differences. Students were able to observe differences in the amount of phages present within various types of soil samples which allowed for further emphasis on the diversity of the phages. The phages were isolated using the methods of enriched isolation and samples were collected across Nassau and Suffolk counties from either a flower pot or a nature preserve. All isolated phages have a Siphoviridae morphotype. No further annotations on the phages have been made as we are awaiting test results and information regarding further sequencing.

Events that created a Masterpiece

Andie Baco[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Frauleben und Leben was written by a German composer named Robert Schumann (1810-1856) after the personal events trying to earn the right to marry the woman of his dreams. Robert Schumann before becoming a full-time musician, he went to school for Ecclesiastical and international law. Schumann decided to opt out of law and began to take lessons will a well-known man named Friedrich Wieck. While taking lessons Schumann went to many musical activities which led him to be inspired by early contemporary virtuosos. Later, Schumann had met woman named Clara Wieck. Clara was Schumann's private lesson teacher's daughter. Their relationship grew and became more than a friendship and Schumann knew that he wanted to marry her. When discussing his idea of marring Clara, Friedrich denied Schumann of marring his daughter. Schumann had then consulted an attorney and began the process of a legal battle. After the battle between Schumann and Wieck, the court granted permission for Schumann to marry Clara. Schumann took these events in his life and turned them into the song cycle known as Frauleben und Leben. Although the songs were where written about his life events, Schumann wrote all eight songs in the women's perspective and the woman who is portrayed in this song cycle is none other than his wife Clara Schumann. The songs that I will be focusing on are 'Seit ich ihn gesehen' ("Since I saw him) and 'Du Ring an meinem Finger' ("You ring upon my finger"). The whole song cycle focuses a woman's journey of falling in love to getting married. Between the melodic and harmonic contrast that each song has, Schumann with the use of specific poetic text to express the events that are happening. I hope to share the same

enthusiasm I have about the composer Robert Schumann and his love for his wife Clara Schumann in my project.

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Acute Heart Rate Changes from Unweighted Conditions in a Lower Body Positive Pressure Treadmill

Mr. Matthew Ballesteros[1], Danielle Toth[1], Madison Rees[1], Dr. James Hokanson[1], Dr. Bryanne Bellovary[1], Dr. Erik Lind[1]
[1]SUNY Cortland

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Cardiac output is maintained by changes in heart rate (HR) and stroke volume (SV). SV is regulated in part by venous return. If venous return increases due to increased pressure on the veins by lower extremity muscles or increased external pressure on this portion of the body, SV will increase and HR will decrease at rest. A lower body positive pressure treadmill (LBPP-TM) would be one example of applying external pressure to the lower extremities to create unweighted conditions. Therefore, the purpose of this study was to investigate acute changes in HR with changing unweighted conditions in a LBPP-TM. College-aged participants (N = 9, 21.3±1.8 years) stood in a LBPP-TM in the following ordered conditions: 100%BWset (no unweighting, control), 70%BW¬set, 35%BWset, and 90%BWset (35%BWset is the greatest unweighted condition). A Suntech® Tango M2 measured HR once during 100%BWset and was averaged over the five-minute stages during 70%BW¬set, 35%BWset, and 90%BWset. A repeated measures ANOVA with a Bonferroni post-hoc test determined differences in HR across LBPP-TM conditions (statistical significance = 0.05). Analyses demonstrated HR decreased during 70%BWset ($p = 0.008$) compared to 100%BWset (79±10 bpm and 84±12 bpm, respectively) and remained similar from 70%BWset to 35%BWset (76±9 bpm; $p = 0.572$). Then HR increased back to baseline (100%BWset) when unweighted conditions changed from 35%BWset to 90%BWset (83±11 bpm, $p < 0.001$). These initial results suggest HR changed due to changes in venous return as unweighted conditions changed. The pressure on the lower extremities during 70%BWset and 35%BWset seemed to provide sufficient pressure to increase venous return and lower HR, then upon returning to 90%BWset from 35%BWset, thus reducing pressure, HR returned to baseline. These acute HR alterations may address a need to investigate the impact this LBPP-TM will have when setting exercise intensities based on percentages of HR.

Comparison of granites in the Sebago area, Southern Maine

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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Strategic collection of granitic rock specimens was used to test previous mapping and analyses from the Sebago pluton NE contact zone with surrounding migmatite-granite complex country rocks. The contact zone is the center of our study area (near Gray, ME) where the coarse-grained granite is interleaved with migmatite country rocks. To the west is the Sebago pluton defined by homogeneous, medium-to coarse-grained 2-mica granite. In contrast to the Sebago pluton, to the east rocks are strongly heterogeneous in a complex of plastically deformed migmatites and granites with varied compositions and textures in the migmatite-granite complex, MGC, of S. Maine, and interpreted to be country rock to the pluton

emplacement. Granites of the contact zone are relatively similar to the pluton rocks with discrete finer grained granite dikes.
We selected representative granite specimens along a W-E transect, 1 from each map unit and across the pluton contact. The specimen from the Sebago pluton is from a 300-meter-long roadcut of homogeneous coarse-grained 2-mica granite. The specimen from the contact zone is from a 3-meter-wide dike of medium-grained 2-mica granite that crosscuts the main layers that define the contact zone. The granite from the MGC is from a boudinaged granite layer in migmatite. We collected mineral composition and grain size data for comparison. Thin sections were cut according to any fabrics. We documented any preferred orientations of minerals and grain-shape fabrics.
All specimens are similar in composition but contrast in texture owing to map unit sample location. The Sebago pluton specimen is coarse grained with mosaic equigranular to seriate texture. Undulose extinction in quartz is the only strain microstructure. The contact zone specimen is relatively strain free, similar in texture (finer grained) to the Sebago specimen. In contrast, the MGC specimen is granitic gneiss with significant plastic strain recorded including undulose extinction in both quartz and feldspar, both with serrated grain boundaries, and a strong mica foliation. Consistent with previous work, clearly the Sebago pluton is distinct from the MGC country rocks, yet the contact zone granitic rocks more closely resemble the pluton.

Diagnosing Ketosis in Early Lactation Dairy Cows - Which is the Best Testing Method

Alyssa Bilodeau[1], Haley Almy[1]
[1]SUNY Cobleskill

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Ketosis is a common metabolic disorder affecting early lactation dairy cows. These cows have recently given birth and the transition to milk production coupled with feed and environmental changes make it a difficult time for cows and dairy producers. Much research has been conducted regarding the diagnosis, treatment, prevention, and management of ketosis, but the disease still poses a significant challenge. If left undiagnosed, ketosis leads to decreased feed intake and health status, and loss of milk production. With many diagnostic tests available, there has been continued debate about which test is best. The objective of this study was to diagnose ketosis in dairy cows at the campus dairy farm and determine which test was easiest to use, provided consistent and accurate results, and was most cost-effective. Two testing methods were compared: blood sample test (Precision Xtra Blood Ketone Meter, Abbott) and milk sample test (Keto-Test milk strips, Elanco Animal Health). For five weeks, cows (n=15) were selected and tested based on their lactation stage (5-30 Days In Milk). Composite milk samples were taken prior to machine milking and blood was collected from the coccygeal vessels to test ketone levels. Preliminary results showed that ease of use was comparable for both testing methods, but the blood ketone meter provided more consistent data as it displayed ketone levels digitally, while the milk sample strips indicate ketones on a color-metric scale. While all data has not yet been analyzed from this study, we can see a clear difference in cost and storage parameters between the two testing methods that may prove significant. Determining an easy and cost-effective ketosis diagnostic method will be beneficial to the campus farm where students are the primary labor source, as well as to NY dairy producers who employ workers with various educational backgrounds.

A Look at Hygiene in Buffalo

Leah Blatner[1]
[1]Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

How important is hygiene in Buffalo, New York? Often, we can see what a society values when looking at the policies that they have set. Although it seems like a basic right, hygiene and poverty is often neglected in legislation. It is common practice for impoverished parents to miss work to take care of their children because they cannot afford diapers that many daycares require. There is no equivalent to food stamps for hygiene products. In addition, there are people who menstruate that often have to miss school or work because they cannot afford period products and the taxes that come with them. For this reason, this presentation will focus on what hygiene looks like in the city of Buffalo through PhotoVoice, a research method that is centered on taking pictures of the problems within our society. Based on a preliminary investigation of this, there is a fundamental problem in Buffalo that is trying to be fixed through nonprofit organizations. My poster will discuss whether or not these organizations are beneficial to people struggling with poverty and hygiene. The goal of this research is to bring awareness to a topic that most people assume to be a basic human right, and whether or not it can be accessible to everyone.

The Influence of Hip Hop on Black Communities

Atem Bol[1]
[1]Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research will examine the ways hip hop music and culture have affected black communities in the United States in recent decades. Byron Hurt's documentary Hip Hop Beyond Beats and Rhymes, draws attention to the toxic masculinity associated with hip hop lyrics and the effect this has had on black women. I will be comparing and contrasting Hurt's 2011 documentary with the more recent documentary, "Jeen-Yuhs" featuring Kanye West directed by Coodie Simmons (2021). I will closely consider how these films illustrate hip hop's evolution over the last twenty years and particularly the change that occurred with the influence of Kanye West's first album, which shifted the way people look at hip hop today. Specifically, West's creativity made it possible for people within the black community to look at things with a fresh perspective, moving away from lyrics focused on disrespecting women, and glorifying drugs, prison and killing each other. This study will show that hip hop's changing culture has profoundly influenced the black community's priorities about everything from the way black people dress to how they approach societal issues. Hip Hop culture has an amazing influence upon black people but with that influence it also has some flaws and that is what I'll address within this paper.

Tribology Analysis of Inconel 718

Ms. Jessica Brown[1], **Ms. Jasmine Brown[1]**, Mr. Juan Lopez[1], Dr. Alireza Dalili[1], Dr. Khosro Shirvani[1], Dr. Jason Fox[2]
[1]Farmingdale State College, [2]National Institute of Standards and Technology (NIST)

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Inconel 718 (INC 718) is a superalloy that has a wide range of applications such as in jet turbines, liquid fuel rockets and cryogenic tankages. INC 718 can be manufactured through traditional and additive manufacturing (AM) methods. In this study we compared the tribology of INC 718 manufactured traditionally with INC 718 manufactured with AM. The traditional INC 718 pin samples were prepared to a surface roughness tolerance of 0.2 microns. The AM INC 718 was supplied by the National Institute of Standards and Technology (NIST). INC 718 samples were tested for surface roughness with a profilometer. Wear, coefficient of friction, frictional force and temperature over time were all measured with a pin-on-

disc friction and wear tester. After testing the samples on the pin-on-disc, the profilometer was utilized once again to compare the surface roughness of the AM and traditional INC 718 samples and determine which manufacturing method led to less wear. By testing various loads, duration and RPM on the pin-on-disc friction and wear tester we were able to have a comprehensive understanding of physical properties of INC 718 manufactured through two different methods leading to a better understanding of the benefits and limitations of the new methods of manufacturing.
Mentors: Alireza Dalili and Khosro Shirvani

"Go Get Her": Seasonal Line Development for the Women's Business Wear Brand

Rochelle Hylton[1], Jessica Piper[1], Madison Brown[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The Seasonal Line Development was a project in FTT 358 Fashion Forecasting class that was focused on developing an apparel line of the fashion brand for the ("FW22") fashion season. Through this project we were able to get an idea of how designers and merchandisers of the fashion brand develop a product line. In the project we had three phases to create a clothing line for our fictitious brand. First, through phase 1 Branding, we created a brand name, brand concept, target consumer profile, positioning map, product categories, and the price range of our products. With the brand name Go Get Her, we developed a business wear brand targeting young professional women aged between 22-45. During phase 2 Trend analysis, we researched the upcoming fashion trends regarding color, fabric, style, and design elements, using fashion forecasting techniques and reliable resources. During phase 3 Forecasting the seasonal line, we developed a theme for our line, "Style is Her Strongest Suit," and mood board. Our theme encompasses the strong, independent, and sophisticated working women's images. The overall mood and design of the garments allow for business during the day, and a little bit of fun at night. The color palette we chose mixes soft browns and light pinks that transition perfectly from sun to moon. Fabrics that compliment these colors are corduroy, knit, and cotton blends. Based on our textile/color choices and brand concept, we designed women's business wear with style combinations suggested. We designed a blazer and short set with tan fabric and a light-weight shirt underneath. Another design was a flowy dress out of a light beige colored fabric. We also designed corduroy flared pants with a peasant sleeved shirt. Our last design was a plaid skirt and a bishop sleeved shirt with a ruffle collar. These designs represent the power woman our project is about. They are fashionable and unique designs that will stand out in the workplace. We created these designs because they will help the woman who wears them to feel confident and powerful in what they do.

Market Crash of Sports Cards During the Junk Wax Era

Justin Brown[1]
[1]Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

This project looks at the mass production of sports cards in what is known as the Junk Wax Era, which takes place from 1987-1994 and how competition between the card manufacturers led to the mass production. The Junk Wax Era gets its name because most of the cards that were produced from this time are junk and are not even worth the cardboard they were printed on. The reason they became so worthless is because the companies at the time were mass producing the cards, and because there was no internet at the time there was no way of knowing how much they were producing. None of the companies have openly come

out with the exact number of cards they produced during this era, collectors of this time have speculated it is 3x the amount that was normally produced. These companies were able to exploit the high demand of the collectors and mass produce their products. Collectors at this time believed they were sitting on a gold mine and thought one day their collection would be worth a fortune, and how could they not when the sole source of pricing their cards came from Beckett Magazine. Beckett Magazine at this time was pricing the individual cards 10x the price of the box. For my primary sources I primarily look at the Beckett Magazines between the years 1987-1994, as well as collectors from that time and their experiences, and lastly I also look at New York Times articles from this time, specifically in the business section as they promoted sports cards to be a good investment. My presentation will include sales by Topps, Fleer, and Donruss during the Junk Wax Era, as well as the prices of the boxes at the time, and what they are worth present day.

High-sugar adapted Drosophila melanogaster display differences in feeding behavior

Ms. Melina Brunelli[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Overnutrition due to chronic high-sugar (HS) feeding has been shown to reduce lifespan and elicit type II diabetes-like pathophysiology phenotypes, such as obesity, hyperglycemia, and insulin resistance, in Drosophila melanogaster. We are using an experimental evolution approach in large, outbred Drosophila populations using a HS diet as the selective pressure. This has produced rapid phenotypic adaptation including a significant increase in survival for selected flies on the HS diet. One mechanism by which flies might reduce the effects of a HS diet would be to reduce consumption. Thus, we hypothesized that there would be differences in feeding behavior between control and adapted populations. Four control and four HS-selected populations were separated by sex and fed either control (5% w/v sugar) or HS (34% w/v) medium supplemented with 2% FD&C Blue #1 for two hours and spectrometry was used to quantify the amount consumed. Consistent with previous findings, females ate more than males. Some HS-adapted fly populations exhibited an overall reduction in feeding, whereas others showed a greater sensitivity to calorie content, compared with controls. In the selected population with the longest lifespan and healthspan, there was no difference in females' feeding on control food, but a significant reduction was observed when eating HS food. This is consistent with the greater triacylglycerol (TAG) content in HS-fed control flies, compared with selected flies. Moving forward, we hope to compare whole genome sequencing data from the starting and adapted populations to identify the genes that link feeding behavior to the underlying biochemical or neurological processes that drive the observed differences in consumption.

Rootless

Daunte Crawley[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

How has redlining contributed to poverty in Buffalo? In the United States, racism falls under redlining. Redlining was a federal policy that denied mortgages to families of color and people in or near neighborhoods with high percentages of minorities. Across the US this has caused devastating impacts on African American families by hindering their ability to own a home. We know that redlining is happening in the United States, but we don't know if that's happening here in Buffalo. Photovoice provides an opportunity to explore this question, photovoice uses people's photographic documentation of their

everyday lives as an educational tool to record and to reflect needs, promote dialogue, encourage action, and inform policy. I'm going to take photos of examples of what redlining looks like in Buffalo, also look at the research to see if redlining is happening in Buffalo, provide local statistics about redlining in Buffalo, and include that information in my poster. My overall intention of the project is to raise awareness about redlining in Buffalo, the history of redlining in Buffalo, and how that impacts the Buffalo population today. My poster will include local resources, advocacy groups, and action steps people can take if they are interested in helping to address this problem.

Manipulating Gap Junction and Hemichannel Activity with Mimetic Peptoids

Anna Dano[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Gap junctions are intercellular channels that provide a direct pathway for the transfer of ions and small molecules between the cytosolic compartments of neighboring cells. They serve diverse physiological roles including synchronization of electrical activity, metabolic coupling, and signal propagation. Gap junctions assemble from the end-to-end docking of hemichannels composed of members of the connexin protein family. These hemichannels have also been shown to serve physiological roles distinct from those served by gap junction channels. Traditionally, gap junction and hemichannel studies have relied on the use of non-specific blockers to assign functional roles for the channels in a targeted cellular process. There is a growing need for specific channel blockers to not only advance structure/function studies, but to develop therapeutics targeting channel behavior in physiological and pathophysiological processes. In the last decade, mimetic peptides have demonstrated ability to alter the activity of connexin-based channels. GAP-27 is a peptide designed against the second extracellular loop of Connexin 43 (Cx43) and has been shown to impair both hemichannel and gap junction channel activity. We synthesized hybrid peptide-peptoid analogs of Gap-27 that can improve cellular stability of the oligomer, while retaining the integrity of the side chains. A dye-uptake assay is used to measure hemichannel activity and a scrape-load dye-transfer technique is used to measure gap junction communication in Normal Rat Kidney (NRK) cells which is known to express Cx43. We will explore the blocking effects of proteolytically stable mimetic peptides in place of GAP-27 peptide on Cx43 hemichannels and gap junctions.

Reduction of High Enrichment Decreases Compulsive Hole-Poking Behaviors in Male Rats and Increases Dopamine Levels in Hypothalamus of Female Rats

Ms. Lauren DeMarco[1], Cat Carfagno
[1]*Binghamton University FRI Program*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The goal of this experiment was to evaluate a novel animal model of adolescent stress-induced vulnerability to addictive-like behaviors in male and female Sprague Dawley rats. The model was designed to reflect the psychological stress induced by the COVID-19 pandemic. Stress was induced by a removal from a high enrichment (HI) environment to a standard environment (STD). The HI environment consisted of three to four weekly 20-min playdates with 13 other rats, three to four weekly 5-min periods of human handling, and being pair-housed in larger sized cages with multiple toys. The STD environment consisted of no

playdates, minimal human handling, and being pair-housed in standard sized cages with only one toy. The model was assessed by the number of hole pokes in the Hole Board (HB) and number of grooms. Removal of the HI enrichment decreased the number of hole pokes of the male experimental group, but did not alter grooming behaviors. The model was also assessed by analysis of monoamine levels in the hypothalamus and prefrontal cortex. Removal of the HI enrichment increased dopamine levels in the hypothalamus of the female experimental group. Further analysis of additional behaviors, brain regions, and neurotransmitters is needed to determine the validity and usefulness of this new model to address new psychological challenges imposed by the COVID-19 pandemic.

Developing a Guide for Effective Ketosis Testing on Dairy Farms in NY.

Ms. Mia Durham[1]
[1]SUNY Cobleskill

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Ketosis is a metabolic disease affecting over 20% of high producing dairy cattle globally during the early postpartum period. During this stage, the net energy balance of the cow is negative due to her diminished appetite and increased energy needs at the onset of lactation. An excessive negative energy balance results in ketosis, which can lead to further decreased feed intake, other secondary inflammatory diseases, and even death. This is significant to both dairy farmers and consumers. Recent studies highlighted the importance of regularly monitoring ketone levels in dairy cattle to detect subclinical ketosis sooner and avoid significant costs, but they did not consider the skillset, labor-intensity, or implementation strategy required to do so. The objective of this study was to address this research gap by assessing and comparing the cow-side blood (Precision Xtra Blood Ketone Meter, Abbott), urine (Ketostix for Urinalysis, Bayer), and milk (Keto-Test, Elanco Animal Health) ketone tests at the SUNY Cobleskill dairy farm and develop a guide to aid farm employees in effective testing. Blood, urine, and milk samples were collected from early lactation cows (n=15) each week for five weeks. Each test was found to have varying precision, costs, and ease of use for college students to perform depending on their knowledge and experience levels. Similarly, employee skillsets on dairy farms across NY State are varied. A set of cow-side guides outlining the steps for performing the various ketosis tests were developed to help bridge the skillset gaps among college students and farm employees. Implementing these guides on dairy farms may encourage farm employees of varying cultures and backgrounds to regularly test for ketosis which will improve overall herd health and farm production.

Mentally Taxing

Ms. Amanda Dutka[1]
[1]Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research question is what poverty and mental health look like in the Buffalo area. The background information on this research project stems from online articles as well as online visuals. Mental health, trauma, and discrimination are prevalent across the country and connect to poverty. I used the photovoice method to answer the question stated above. Photovoice is a technique that solely relies on pictures to capture reality when performing research on a subject. I drove around Buffalo and thoughtfully took pictures of what best describes mental health for my poster. I also completed a SHOWeD analysis to help the audience understand my own perspective. I utilized five photos for my poster that draw a connection between mental health and the city of Buffalo. In conclusion, based on the photos and statistics, the research reflects what is really happening here in the Buffalo area. I chose this topic hoping that it would

raise awareness about the correlation between poor mental health and poverty rates. Society should start addressing this issue more seriously because of how many people we can assist. On my poster, I have listed numerous agencies, resources and advocacy groups that can help individuals get involved in this issue.

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Are cloud servers really as secure as we think they are?

Brian Fitzgerald
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Cloud servers seem to be the way of the future, becoming more and more popular by the day. Cloud servers being known for their affordability, convenience, reliability, and scalability is what makes them a top choice for many companies today. However, the question is, are cloud servers really as secure as we think they are? As convenient as cloud servers are, they aren't as secure as we think. Research suggests that cloud servers are open to vulnerabilities that do not typically affect or occur in traditional data centers or on-premise servers. Utilizing cloud servers reduces organization control, leaving configuration and policies up to the provider in many situations. Other issues can be common such as credentials being stolen and unauthorized access. This paper will serve a purpose to explore the vulnerabilities commonly associated with cloud services, and provide recommendations to better secure cloud services and allow more control into the hands of the organization.

The Bacteriophage Archie: Investigation into the roles of Genes 52 and 66

Ms. Maajeek Flores[1], Dr. Nancy Elwess[1], Dr. Megan Valentine[1]
[1]*SUNY Plattsburgh*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Bacteriophages, also called "phages," are the most abundant organism in the biosphere. Bacteriophages are a type of virus that infects bacteria by injecting its genetic material into its host cell. Bacteriophages often have more than 100 genes, with many different functions. Little is known about the role many of these genes play, and a better understanding of the function of these genes will lead to a more complete understanding of bacteriophages. The phage being studied in this experiment, Archie, is a lysogenic mycobacterium phage, discovered in 2009 in Corvallis, OR by Rose M. Clark. Archie has a large number of genes, 126, which are being studied through the SEA-GENES class, supported by the Howard Hughes Medical Institute (HHMI) at SUNY Plattsburgh. Two genes, Archie_52 and Archie_66 were cloned and ligated into a specialized plasmid, pExTra, using isothermal assembly. After electroporating the assembled plasmids into the host, Mycobacterium smegmatis, two assays were performed. The defense and cytotoxicity assay showed that Archie_52 was toxic to the host while the function of Archie_66 is still unknown, but the gene does not appear toxic or defensive. Overall, these assays aim to discover some of the functions of the different genes present in Archie to better understand the role they play in phage infection, defense, and release.

Mental Health: The Trauma with Poverty and Discrimination

Grace Gallagher[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

In this research, we will be looking at the question of what does poverty and mental health look like in Buffalo, NY. The United States has been changing the way poverty and oppression are looked at, labeling living in poverty and oppression as trauma. Adverse Childhood Experiences (ACES) of children who are in poverty indicate that they have had more trauma than children that are not living in poverty. In this project and research specifically, I will be using PhotoVoice, or taking photos and explaining the meaning behind the photo. A photo can have a different meaning to every person who views it, so doing PhotoVoice can give the viewer another understanding of the photo. I collected data in high-poverty neighborhoods in Buffalo and different mental health facilities to take photos and explain these photos in more depth. Being able to examine mental health in Buffalo, NY can give us a better look at how mental health and poverty go hand-and-hand. In Buffalo N.Y., there are many ways poverty can be looked at. Looking at the photos from PhotoVoice can hopefully open the eyes of those living in Buffalo to know that mental health and poverty are a coinciding force. I hope through the research of mental health and poverty in Buffalo will bring awareness to those in the community about mental health.

"Affordable Housing" is Still Unaffordable

Ms. Janesa Gamblin[1]
[1]Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research question is what poverty and housing looks like in Buffalo, NY. There are housing issues that are happening in the US. There are people who must choose between paying rent, eating or paying for their utilities. There's a Nationwide problem of people having to live in unsafe housing and who are dealing with housing discrimination. I am going to use photovoice to gather information on whether discrimination, unaffordable housing and slum lords is a problem in Buffalo. Photovoice is a participatory research method where you go out and take photos to give a visual of what's going on in one's environment. I went to the east side of Buffalo to take photos; I will choose 3 of these photos that best represents my poster. These photos will draw a connection to what's going on in Buffalo and across the nation. You will be able to see from these photos and local statistics that housing is a problem in Buffalo. My purpose of this project is to bring awareness to the housing crisis in Buffalo. What I hope to find is how effective is the fair housing act. My conclusion is what some may believe to be affordable housing is unaffordable. On my poster I will include local resources and ways people can get involved to on help promote change around this issue.

Examining the Relationship between Executive Function Skills and Early Literacy in Preschoolers

Mr. Kiernan Garcia[1], Mr. Michael Figgucio
[1]Farmingdale State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Executive function skills are an array of cognitive abilities that have also been linked to future scholastic achievement including reading. Based on prior research, it is hypothesized that executive functioning skills will positively correlate with measures of early literacy in children. 32 children (M=53.91 months, SD=3.55) participated in the study (15 males). Preschoolers completed a cognitive-linguistic battery of tests. Children also completed a developmentally appropriate flanker task via touch screen. Children completed 120 trials evenly divided among congruent, incongruent, and neutral conditions. Overall flanker task accuracy was

positively correlated with elision (r=.53, p=.002), rapid color naming (r=.38, p=.039), vocabulary (r=.41, p=.022), and core language (r=.48, p=.008). Additionally, congruent accuracy was positively correlated with elision (r=.48, p=.007). In addition, incongruent accuracy was positively correlated with elision (r=.46, p=.008), blending (r=.36, p=.042), rapid color naming (r=.39, p=.032), vocabulary (r=.40, p=.024), and core language (r=.46, p=.012). Lastly, neutral accuracy was positively correlated with elision (r=.49, p=.005), vocabulary (r=.36, p=.044), and core language (r=.46, p=.013). The current study showed that flanker task accuracy, a measure of executive function skills, was associated with an array of pre-reading skills in preschoolers. These results add to the body of work illustrating the importance of executive function skills in early literacy development. Future research may investigate whether executive function interventions are effective in treating reading deficiencies.

The Role of Cannabis Use on Changes in Anxiety Symptoms

Francesca Giaquinto[1], Abigail Kruse
[1]Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Cannabis is one of the most commonly used psychoactive drugs worldwide and it has been associated with various mental health outcomes (e.g., depression, cannabis dependence, poor regulation of emotional responses). Researchers have found that one of the most common reasons that individuals use cannabis is to try to alleviate feelings of stress, as many cannabis users suffer from anxiety disorders. Although anxiety is one of the most diagnosed mental illnesses worldwide, there is uncertainty in the directionality of the association between cannabis use and anxiety. The hypothesis for the current study is that cannabis use is associated with changes in anxiety symptoms. To test the current hypothesis, a longitudinal survey was conducted which examined changes in behavior and substance use for college students. College students were recruited from Buffalo State College and completed a survey aimed at understanding experiences of college students. Participants were assessed using questions pertaining to their basic demographics, the Inventory of Depression and Anxiety Symptoms, and questions following procedures used by the Substance Abuse and Mental Health Services Administration. The Inventory of Depression and Anxiety Symptoms assessed symptoms associated with anxiety and mood disorders. Questions adopted from the Substance Abuse and Mental Health Services assessed the frequency of cannabis use, and how old the participant was when they first used cannabis. Two waves of data were collected from the survey, and there was approximately one month between each wave of data. Data collection is currently ongoing.

Best Friends Turned Enemies

Mr. Charles Gilbert[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

What would happen if two influential but polarizing civil rights figures were so close, they might be considered blood brothers? And what if outside forces caused this friendship to end, resulting in these two never speaking again? Malcolm X and Muhammad Ali were those two friends, and this paper will take a deep look into the 2021 documentary putting their friendship in context: Blood Brothers | Malcolm X & Muhammad Ali directed by Marcus Clarke. The documentary is based on the book Blood Brothers: The Fatal Friendship between Muhammad Ali and Malcolm X by history professor Randy Roberts and sports sociologist Johnny Smith, who serve as major interview subjects in the new documentary. The film takes advantage of a myriad of archival footage and interviews available from past biographies and documentaries, and the story is revealed through the selection and editing of this material. Malcolm X has

often been demonized in the press for his beliefs and way of life. Even though Muhammad Ali's fundamental beliefs were the same as X's, he was accepted as a golden boy in the boxing ring and beyond. The paper will focus on how the media has influenced our perception of the relationship between these two, and how their stories have profoundly impacted the African American community, as well as the world's understanding of what it means to be black in the United States.

Poverty & Housing

Calvin Gourrier-Gamble[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The problem being addressed in my research is what does Poverty and Housing look like in Buffalo, NY. Across the country, the high cost of housing is impacting people who are living below the poverty line. For instance, people who cannot afford suitable housing due to the cost of living, are forced to live in communities with high crime rates, as well as homes that cannot uphold suitable living conditions. The method being used is Photovoice. Photovoice is a research method where you go out and take pictures to find examples that may correlate with my research topic. I will collect data by going out to different neighborhoods and looking at the geographical difference between the two. I will then look at the difference of housing costs for each neighborhood. After taking numerous photos in different areas of Buffalo, I will then narrow it down to the best pictures for my poster to help the audience understand my perspective of what I was seeing in these pictures that I took. In the final results I used a few photos on my poster, which show connection to what's happening here in Buffalo, as opposed to other places in America. Local statistics that support these photos; affordable housing is a problem in Buffalo. From my findings, Buffalo has some work surrounding this issue and I've included resources around the community that individuals will be able to get involved to fix this current issue. This issue has been an ongoing issue throughout the Nation.

The impact of COVID-19 on the reinforcing value of food

Morgan Harrington[1]
[1]SUNY Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

It has been found that adolescents worked harder for an unhealthy snack compared to a healthy snack, like fruit. However, it was unknown whether stress would influence a participant's reinforcing food value. To answer this question, participants came into the laboratory and either went through a stress condition (consisting of a mock job interview) or a non-stress condition (playing solitaire). Afterward, they worked for a reward of M&Ms or grapes. In order to measure the reinforcing value of the food, the portions of food earned were monitored. In addition, stress reactivity was measured throughout the study. It was hypothesized that under stress, participants would play for more portions of M&Ms. This study was started in the fall of 2019. However, because of the COVID-19 pandemic, data collection was paused about halfway through. Data collection resumed in fall of 2021. It is possible that the COVID-19 pandemic affected results because it has been found that participants ate an estimated 14% more added sugars in 2020 than in 2019, in correlation with the pandemic. Therefore, it was important to determine if the pandemic affected any measures of stress or relative reinforcing value of food. To determine if there were any significant differences, the reinforcing food value and stress reactivity of the pre- and post-pandemic groups were compared. It was found that in the stress condition, participants' anxiety levels remained higher post-COVID than those pre-COVID. It was also found that post-COVID participants in the stress condition clicked

significantly less for food than those who participated in the study pre-COVID. However, there was no significant differences in the non-stress conditions or with clicks for reading. These results indicate that COVID-19 had a lasting impact on individual's ability to recover from a stressor as well as their relative reinforcing value for food.

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Gershwin: All That Jazz

Sarah Hencinski[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

On February 12, 1924, George Gershwin (1898-1937) premiered an iconic entry in the emerging musical world of symphonic jazz that changed the way American art music was viewed. Rhapsody in Blue took the world by storm combining elements of jazz and classical music as a concerto for solo piano and large jazz ensemble. Gershwin, himself, played the premier of Rhapsody in Blue in New York City. Renowned bandleader, Paul Whiteman (1890-1967), brought jazz music to Aeolian Hall in New York City when jazz was considered and viewed as a form of popular music operating at a less serious level than classical art genres. Rhapsody in Blue became almost overnight the "best known concert work of the twentieth century." Gershwin's orchestration was completed by arranger, Ferde Grofé, featuring twenty-three talented musicians from Whiteman's band. Grofé completed the orchestration with Whiteman's band in mind since the musicians were capable of specific techniques and styles heard throughout Rhapsody in Blue: the famous clarinet trill opening also known as the "Glissando Theme" played a huge part in the arrangement. Rhapsody in Blue gained its popularity from Gershwin playing the premier and from being used in films and television. Gershwin also composed an opera, Porgy and Bess, using inspiration from African American artistic expression. Gershwin's Rhapsody in Blue embodied the jazz age and is an instantly recognizable composition to this very day.

Health Does Not Equal Healthcare

Taliya Hendrix
[1]*Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

For this project, I will examine if access to healthcare is different for middle to upper class neighborhoods and poor neighborhoods in Buffalo. In my project, I hope to examine the access to healthcare in middle to upper class neighborhoods, in proximity to access to healthcare in lower income neighborhoods. Nationally, it is evident that those in lower income neighborhoods are of poorer health than those that aren't. For my research, I will go into poorer neighborhoods, and middle to upper class neighborhoods and first take pictures of the facilities available in those neighborhoods. I want to examine the actual condition, and take pictures of the services offered in each facility in the separate neighborhoods. In addition, I hope to examine how many facilities there are in a given neighborhood, and how close in proximity they are to each other compared to the other neighborhood. I believe I will find that in poorer neighborhoods there will be less services available, and less health facilities in general in comparison to the middle to upper class neighborhoods. I tend to look in detail at the discrepancies in affective healthcare in all types of neighborhoods, and determine why funds aren't being allocated where they're needed. My research will highlight the problems people in poverty face with healthcare, and how with the help of patient advocacy groups and individuals like ourselves, we can help curb the gap in healthcare between social classes.

What does hunger look like in Buffalo

Tyisha Henry[1]
[1]*Buffalo state college*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research question is 'what does hunger look like in buffalo' . I chose this topic because more than 38 million people including 12 million children in the United States are food insecure. In my poster I will be showing examples of hunger through images, I will use photo voice to determine if people in Buffalo are also experiencing these issues. Photovoice is a visual research methodology that researchers use to gather documentation with media, such as photos and video communicating issues of concern, while stimulating social change. I found that these issues are present in Buffalo. In 2016, Buffalo-Niagara's poverty rate was 13.8 percent, lower than the state rate of 14.7 percent and the national rate of 14 percent
Programs like SNAP and WIC are essential and do improve the health of millions of people in the US, but they never have been properly scaled and are perpetually the targets of shortsighted cost-cutting. This has been a very difficult line of work for me because I understand hunger and I have experiences with such conditions. I believe that it is high time people, even students in Buffalo State College to become aware of these issues. My goal is for my poster to raise awareness, encourage conversations about this issue, and motivate people to get involved in local advocacy to help address poverty and hunger in Buffalo.

Predicting Traits of Political Activism

Nathan Hurtubise[1]
[1]*Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Political identities are considered an important part of identity to individuals with an interest in politics. The political party one aligns themselves with can influence their beliefs and could be a factor in determining what they do in support of these beliefs. Outside of political ideology alone, anger and aggression can be driving factors in individuals taking political action. Both aggression and personality traits have been shown to be an influential factor in determining if an individual will participate in political activism. Political activism may manifest as peaceful acts (e.g., peaceful protests, debates) or violent acts (e.g., riots). This study looked to determine how these factors may vary among different political identities and if political identity can be a predictor of actions one may take. Other factors were also considered such as the influence of family political beliefs and the impact of politically themed social media consumption. Participants were surveyed on their political identity, family political beliefs, aggressive traits, big five personality traits, and willingness to participate in both violent and nonviolent political activities. By analyzing the correlations between these factors, this study confirmed the conclusions of previous research which showed that political ideology is not necessarily the main factor for participation in political activism. Rather, it is factors such as high aggressive traits and personality traits which can be used to predict this behavior.

Runway 2022: Power of Patterns

Cameron Johnson[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

This year's theme for the runway show is "Push for Progress" this covers topics of social injustice, queer liberation, and sustainability. As a textile design major, I am creating a collection of garments for the runway show that serve as a representation against racism and social injustice of Black individuals. The outcome I want to achieve is to represent this topic that I have chosen to express my concern for and to inspire people to keep looking into this situation with hopes to relieve and resolve the situation all together for a better future.
To do this I am incorporating colors that are symbolic of the fight for social justice, African heritage, and the push for African liberation in my collection. Using that as my color scheme, I will be combining vintage styles of patterns that I created paired with retro silhouettes based on the 50s, 60s, and 70s when the Civil Rights Movement and Black Power movement took place. By doing so, I hope to give people nostalgia that makes them think about any knowledge they have of this problem. Consider historical events that happened in the past and what has even happened in recent years and what could be done to resolve these issues and create equality for everyone. This project is very important to me and many other people and I think it would be a great way to promote conversation, inspire change, and to continue the efforts that were started in the past.

Cyberwarfare and Ideas for Enforcement

Mr. Christopher Klarides[1]
[1]Farmingdale State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

As we progress into a digital age, we expect to see an exponential increase in cyberattacks, active cyber-surveillance, and the destruction of information and communications technology (ICT) infrastructure. We plan to address these issues by developing and enforcing international cyberwarfare policies with the goal of protecting digital assets of people around the world. Currently, no international laws exist regarding cyberwarfare and no way of holding nations accountable for the actions they engage in online. This project focuses on the need for a multilateral and global coalition to write and enforce policies regarding cyberwarfare rules of engagement. This organization is also paramount in tackling the problem of attribution, since it is becoming more difficult to know who is carrying out certain attacks.

Understanding Outstanding Springs: Assessing Anthropogenic Impacts on Florida's Historic Natural Springs

Mr. Alexander Krest[1]
[1]SUNY Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Home to one of the largest concentrations of freshwater springs on Earth, as well as the highest number of first and second magnitude springs of any state in the Nation; Florida has been integrally linked to these unique geological entities and their ecosystems for centuries. These astounding waterbodies not only support a diverse array flora and fauna, but also provide for many anthropogenic means. Whether it be supporting our most basic needs in the form of drinking water, to more sophisticated underpinnings as a source economic stability for a region and the very way of life that localities experience thanks to these natural phenomena. Of the over 700 natural springs officially recognized in the state, 30 have been labeled as "Outstanding Florida Springs" that are to receive additional assessment and protections due to their inherent value and long standing first magnitude discharge classification.

While these systems are generally located in the northern half of the state, which has spared them from some of the peninsula's largest population booms over the last decades, it is imperative that we gain an understanding of population shifts and their associated infrastructure that is occurring across the region in order to assess current and future threats. Whether it be nutrient pollution, excess runoff and associated sedimentation, direct physical disturbance, an influx of foreign chemicals and other contaminants, an increased risk from invasive species, and or a reduction in flow due to water withdraw from anthropogenic activities, a substantial increase in local populations could lead to detrimental short and long-term consequences for these delicate habitats.
Through the use of GIS and a variety of open-source data platforms I will attempt to display metrics such as population changes, relevant permits, and pertinent infrastructure that may give us insight onto which springs may currently be at the most risk and which may become degraded overtime if conditions are not congruent with the systems' needs. This study will aid in the protection of these important ecosystems, and give interested parties insight into the often time overlooked northern Florida region.

Senior Practicum: Town of Amherst Medical Use Inventory and Report

Ava LaBella[1]
[1]Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The Town of Amherst has undertaken an Economic Recovery Plan to assess the social and economic impacts of COVID-19. Among its findings, the Town recognized an overall shift in land use and business in the medical industry, specifically the diffusion of service providers from operating within large hospitals to smaller "boutique" medical service providers. This shift has resulted in new businesses and increased multiple vacant medical offices, as determined by a field inventory conducted by the Town within the Interstate-290 corridor. Buffalo State Senior Urban and Regional Planning students were tasked with extending this inventory into the I-90 and I-990 corridors to answer key research questions: What medical and healthcare uses exist in these areas? Is this sector growing in Amherst and the region? Which parcels would support growth and development of this sector? Our methodology included delineating the I-990 and I-90 study areas using Geographical Information System (GIS); identifying parcels within these study areas to inventory; using GIS to identify vacant parcels with redevelopment potential; and, finally inventorying uses in the field. The final report will assess the Town's overall market position in the medical and healthcare industry and provide charts, graphs, and maps that help visually and spatially understand this sector. Further, the report will make recommendations about which sectors the Town should support based on an overall assessment of the regional market and the availability of land and buildings that would support new development.

Where to next? Invasive species Distributions Across New York State

Ms. Jade LaRock[1]
[1]SUNY Buffalo State College

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

An invasive species is a non-native species that is introduced into an environment for which it does not belong. In this new environment, the species thrives because it usually fills a niche that was not previously in the ecosystem. The main problem with invasive species is that they do not have any natural predators and therefore, can have populations grow at much faster rates than native species in that area. Invasive species also pose a threat to native populations because they can outcompete the native populations for resources or can destroy populations if invasive species are left unchecked. For my project, I would like to

look at the spatial distributions of one or two invasive species found in New York State using the ArcGIS Pro software. This spatial analysis can be done using data from a website called "iMapInvasives". This website provides data to the public on invasive species detections through volunteer and research work. This data will be used to analyze the spatial distributions in ArcGIS Pro of certain invasive species that are yet to be determined. Further research will also be conducted on these species to determine what type of environments these species thrive in best. From there, I will create a map overlay of the classifications of land types to help determine where these invasive species could potentially spread too. This project could aid in stopping the spread of invasive species by mapping where these species could spread to and potentially be able to use preventative action to help stop the spread and hopefully, work to eliminate the species.

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Hygiene is Our Priority

Brianna Laveglia[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The problem I am trying to answer in my research is: what does poverty and hygiene look like in Buffalo? Across the United States individuals that are homeless and families that are below or near the poverty line cannot afford or do not have access to basic hygiene products. These products that people do not have access to can be soap and water to wash their hands. There are also mothers who have to decide if they want to eat, be able to change their baby's diapers or wash clothes. I will be using Photovoice to see the underlying connection between poverty and hygiene in Buffalo. Photovoice is a research method in which I will be going out in Buffalo to take pictures of what has to do with my topic. I will then narrow these photos down to the best ones and explain in an analysis, my perspective on why I feel these photos represent my topic. There will be 3 photos on my poster that show what is happening with the hygiene problem in Buffalo. People in Buffalo are experiencing similar struggles to others across the US. Hygiene products are too expensive and inaccessible, which results in bad hygiene, affects one's health, and ability to be successful. My poster will include local resources/advocacy groups that show ways to get involved and promote change with this issue.

Java QR Generator for PDF Information

Jovannie Lopez[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

This research project will develop a PDF scanner and a QR Generator using the Java programming language for an organization called Paychex. Paychex is a Rochester based company that submits clients payroll forms online, views critical reports to use for decision-making, and chooses to add on other products, such as time tracking, HR functions and more. The PDF documents submitted by their clients need to be scanned and checked for a signature. Then the information from the important pages of the PDF documents signified by key terms on the corners of the pages need to be stored in the database of Paychex. A QR code will be developed using the information and placed next to the key term that is used to identify the PDF. The PDF documents can be in either Spanish or English and need to be able to tell the difference between English and Spanish. Another part of the project will be to check if the PDF has signatures in the required fields. If it does, it will go along without any issue. Otherwise, the PDF has to be flagged so that Paychex can get it

signed by the client that filled out the form. Paychex provides documents such as a W-4, payroll information and other forms without any client information for testing purposes. They will provide more PDF documents that have information that clients would normally fill out as the project moves forward to test more aspects of the program. As more work is done on the project the scope continues to widen.

Cellular Localization of Dbp2 and Identification of its Interaction Partners

Ms. Rebekah Lubinga[1], Sara Cloutier[2], Kirsten Westerhouse[2], Dr Elizabeth J Tran[2]
[1]Binghamton University , [2]Purdue University

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Dbp2 is a DEAD-box RNA helicase in S. cerevisiae, whose main function is connected to the ribosomal RNA processing and transcription. Interestingly, the localization of Dbp2 is also highly dependent on the presence of glucose, which enables us to study how cellular stress impacts gene expression machinery. Studies from the Tran laboratory show that the rapid nuclear export of Dbp2 in the absence of glucose. Furthermore, unpublished studies from the Tran lab have linked specific phosphorylation events on Dbp2 to glucose-dependent localization. To determine if phosphorylation affects Dbp2's function and localization, our first step is to generate mutant Dbp2 proteins that localize to the nucleus or the cytoplasm, irrespective of the presence of glucose. To this end, site-directed mutagenesis was used on plasmids containing wild type DBP2 genes to convert codons encoding select serine residues to codons that would encode amino acids mimicking the dephosphorylated and phosphorylated state of Dbp2. Following transformation of these mutant-expressing plasmids and a wild type DBP2 as a control into a dbp2Δ strain, a serial dilution spot assay was performed on glucose and galactose plates (mimicking – glucose). We observed that both the phosphorylation mutants (both the non-phosphorylatable and the phosphor-mimetic) grew substantially better than our wild type Dbp2 and empty vector. This was unexpected and will be followed up with future studies in the Tran laboratory. In addition to mutant Dbp2 generation, we also set out to identify protein interaction partners of Dbp2 in the cytoplasm. Our goal was to use proximity-dependent biotin identification (BioID) using an AirID biotin ligase tag to identify Dbp2's cytoplasmic interaction partners. Following unsuccessful isolation of proteins, immunofluorescence was performed to verify the localization of the ligase tag. Immunofluorescence indicates the AirID tag is more cytoplasmically localized in comparison to nuclear Dbp2, thus, the study was inconclusive. Due to the mislocalization of the AirID tag, in future studies we plan to use different versions of the biotin ligase tag such as the TurboID tag.

How Provider-Patient Interactions Influence Patient Experiences

Emily Lumbis[1]
[1]SUNY Geneseo

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The interaction between a patient and a provider is crucial to the success of any medical or healthcare appointment. It often goes overlooked, and there is more of a focus on the provider correctly diagnosing and treating the patient. Although patients will remember the success of being properly diagnosed and treated for an illness, what truly stands out is the way the interaction went. This ethnographic research project focuses on provider-patient interactions from the patient's perspective, and how those interactions shaped their experiences. The goal of this study was to better understand the interactions between patients and providers and the overall patient experience. Through the use of semi-structured interviews, data was collected from college students at SUNY Geneseo about their patient experiences and interactions with providers. Based on the results, this research argues that the interaction a patient has with their provider influences their overall satisfaction with the experience, that communication and the provider believing the

patient influences the interaction and the satisfaction with the experience, and finally that providers and patients should have an equal power dynamic, as one exerting more power than the other does not produce beneficial interactions or experiences. This study provides a unique perspective on how patients feel based on their lived experiences, which can offer direction for future improvements to the patient-provider interactions that take place within healthcare systems.

Food Insecurity in Buffalo

Mr. Reagan Mabika[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Do people in Buffalo struggle with food security? My project will explore this question. These days foods insecurity is becoming a main comment topic for low-income populations in Buffalo. The method I am using to answer this question is Photovoice. I will take pictures of the city of Buffalo and use them in my research to determine if food security is an issue locally. According to researchers, the lack of funding to support the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Supplemental Nutrition Assistance Program (SNAP) will lead to malnutrition later. Does Buffalo have higher rates of malnutrition compared to the rest of America? How many low-income families are using food pantries and how many kids are using the free lunch program in public school? This can be considered as a big factor that may promote healthy eating. The Buffalo population are not healthy because of what they are eating, especially the Eastside area. This is because of corner stores and not having enough public transportation to do grocery shopping. The United States government and other non-government organization, meaning even the private sector, may respond to this invitation to resolve the food issue in our community by providing enough funding. The interest of the community should be the priority of the American government.

Far-Left and Far-Right Groups: Similarities and Differences in Rhetorical Strategies

Cait Malilay[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My paper will focus on the recruitment strategies of far-right and far-left groups. I will be using content analysis as my research method. My theoretical framework will be based on framing theory and studies of persuasion. Previous studies have focused on the recruitment strategies of far-right groups, but few studies have focused on the similarities and differences in recruitment strategies between the two groups. They may appear very different along the political spectrum, but they are still very alike. I will compare the two groups' similarities and differences. For example, how do they frame their messages? What do they look for when recruiting, and what audiences do they target? My coding scheme includes the following message characteristics and message frames: vulnerability, pride and unity, religion, sex, and race.
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Housing For Everyone

Rachel Marillo[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research project will be about if people living in poverty in the Buffalo area struggle to get affordable housing and to buy their own homes. We live in a very diverse world, especially our country, America. In America, it is more challenging for Hispanics and African Americans to be able to afford housing because their mortgage rates are much higher. I used photovoice to explore if this is also the reality in Buffalo, NY. While using photovoice I found that many people in buffalo who aren't able to afford housing use unsafe conditions such as, sleeping under tunnels, and also going to cheap motels that aren't taken care of properly. Some of these people also rent out abused apartments that aren't being taken care of by their landlord, and the landlord expects tenants to take care of the building. In my poster, I would like to raise awareness of these issues because every person deserves the right to have a safe place to sleep. I don't think having somewhere safe to sleep should be a privilege, it should be a right. My goal is to advocate for the people who are struggling in poverty and find a safe place to live. I want to encourage others to learn more about this issue with housing and to also get more involved in helping the issue.

Urban Stigmas in An Asphalt Jungle

Ms. Mollie McCann Poblocki[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Does poverty and mental health discrimination look the same in Buffalo as it does across the country? Unfortunately, the answer is yes. In most cities comparable in size to Buffalo, incomes are declining, and poverty is growing. Based on several published studies, poverty has been tied to mental health illness and the urban discrimination of both. Most often it is easier for someone to assume that a person is suffering from mental illness rather than see that they're impoverished. But as depicted in many publications, poverty and mental illness are interrelated and cause dire situations. This has been found to be true in the City of Buffalo and my photovoice pictorial will demonstrate this. One of the most common relationships between poverty and mental illness is driven by unemployment rates. Here in Buffalo many businesses have closed or relocated to other cities, reducing employment opportunities. Not being able to find work, directly impacts a parent's ability to provide for their children and can cause higher stress levels, exhaustion, and physical illness. Additionally, chronic, and toxic stress that is brought on by poverty is known to cause depression and other psychiatric illnesses. These conditions cause problematic environments for children and societal discrimination. Therefore, my poster will include local organizations that are focused on providing employment assistance, and mental illness awareness, as well as programs that are designed to assist the whole family and remove stigmas. More importantly, it will demonstrate that social acceptance of these issues is key for a community to overcome them.

Development of a Computational Pipeline for the Multi-Dimensional Analysis of Multi-Echo MRI Data

Saleha Mir[1]

[1]*Buffalo Neuroimaging Analysis Center, Department of Neurology, Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Through Magnetic Resonance Imaging (MRI), an association between multiple sclerosis and iron content has been determined based on properties of quantitative susceptibility mapping (QSM) and effective transverse relaxation rate (R2*). QSM measures bulk tissue magnetic susceptibility based on sensitivity to iron concentration, while R2* is sensitive to both iron distribution and concentration. One study (Taege et al., 2019) introduced iron microstructure coefficient (IMC) that quantifies the ratio between susceptibility and R2* to isolate the subcellular distribution of iron. The main limitation noted by the study was unavailability of phase images from the multi-echo gradient-echo (MGRE) sequence when reconstructing susceptibility maps. Instead, QSM was generated from a gradient-echo sequence and co-registered with the R2* maps — the tradeoff being reduced stability and accuracy of IMC values. In turn, the present work automates IMC analysis utilizing acquired susceptibility maps and R2* from the same MGRE sequence to substantially improve efficiency and accuracy in future studies. The pipeline was designed to be user-friendly and applicable to a variety of cohorts. For processing, the user must only pre-sort data into specific directories within a Linux-operated Neurodocker environment. Inputs include brain scans of the subjects, population-averaged templates, and regions of interest (ROIs). To perform an inter-relatability analysis of IMC, pipeline development involved atlas-based segmentation of the ROIs on the QSM template to be inversely transformed back onto the original subject space. Future work will assess reproducibility and efficiency of the established pipeline through application to a group comparison analysis with large-scale data.

Protein Conformation Ontology

Morgan Mitchell[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Background information: We are creating the Protein Conformation Ontology (PRC) in order to create a comprehensive ontological representation of protein conformations including secondary, tertiary, and quaternary structures. We are interested in formally defining and describing the conformations of proteins including those that adopt alternate conformations based on changing environmental conditions. Description: The developing PRC currently has 71 subclasses of protein secondary structure and will be growing to include tertiary and quaternary structure. Protein conformation classes are found under the Basic Formal Ontology 'disposition' class due to the fact that proteins have the potential to take on different conformations based on a wide range of conditions in their environment. An initial list of protein structures were created based on the Sequence Ontology (SO) class 'polypeptide secondary structure' and information from other sources and then defined as types of conformations that capture their three-dimensional structure rather than as sequence features of polypeptides. We are using these protein secondary structure classes to model the domain structure of the sodium channel on the tertiary and quaternary levels. Conclusion: The long term goals of PRC include describing protein domains in terms of their secondary structure conformation and then describing protein structures according to their domain composition and order. These ontological representations of protein structures can then be linked to the Protein Ontology classes for the relevant proteins, potentially in an automated way. By creating these ontological representations of protein structure, we can enable comparison and querying of proteins based on their structure, both within and across species. Also, we can create ontological representations of protein aggregates linked to pathological conditions, such as neurological diseases, that take into account the alternate conformations of the proteins within them.

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Media Coverage on the AIDS Epidemic of the 1980s and its Effects on the Gay Community in the US

Thomas Olszewski[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

In the early 1980s scientists in the United States discovered a new disease that would be the cause of death for thousands of Americans over the next decade. This disease would later be known as acquired immunodeficiency syndrome or AIDS. During this AIDS epidemic in the 1980s, the media (primarily newspapers and TV broadcasts) played a key role in distributing information about the disease as scientists discovered more about it. At the same time though misinformation was also being spread by the media that had a profound effect on the gay community in the United States. Due to the early discovery of AIDS in gay men, a certain stigma was created which made the gay community fall even more out of favor with the public. The goal then for this research project is to look at the origins of the disease in the United States as well media coverage on the epidemic and how this had a negative impact on the gay community and in particular gay men at the time. This will be achieved by using various sources which include but are not limited to newspapers, TV broadcasts, medical documents, books, as well as oral histories from people who lived through this period.

Princess Diana, Documentary Films and the Conspiracy Theory

Kaelie Pabon[1]
[1]*Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Conspiracy theories play a big role in manipulating our understanding of history, and have flooded the media in recent years via the internet. In this study I will examine conspiracy theory driven documentaries. I will analyze two documentaries on the topic of Princess Diana's life and Death. "Diana Our Mother. Her Life and Legacy" is an HBO documentary authorized by the royal family in 2018. "Princess Diana, Tragedy or Treason?" is a TLC/Discovery documentary produced in 2017. I plan to compare these two films and the accuracy of their depictions of history, and discuss the disruption of the documentary film genre in the presence of conspiracy theories. In particular, my paper will explore whether the standards for representing reality, as posited by documentary theorist Bill Nichols, are changing due to the impact of a burgeoning conspiracy culture.

Dual DNA Recombination System with Cre and PhiC31 Recombinase for Gene Containment and Total Sterilization in Switchgrass

Ms. Zhengyuan Pan[1], XiaoYuan Gao[1]
[1]*SUNY Cobleskill*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Genetic engineering is an essential part of the current biotechnology curriculum, and it is used to introduce desired traits and eliminate undesired traits. During the transgenic process, undesired genes may cause unknown effects to the genetically altered organisms, as well as transgene escape. These issues may raise

public opposition for deploying transgenic plants in the field. This project proposes a dual recombination system with Cre and PhiC31 DNA recombinase for gene containment and transgene escape prevention. The objective of our study was to produce transgenic switchgrass lines stably expressing the Phage PhiC31 recombinase and evaluate in vivo efficacy of PhiC31-mediated and Cre-mediated site-specific DNA recombination. We hypothesized that transgenic switchgrass plants containing a recombination-reporter construct, in which the corn ubiquitin promoter and the Cre coding region is separated by the Bar marker gene flanked by AttP and AttB sites will not show Cre activity; the corn ubiquitin promoter and the AVP1 coding the region is separated by the sequences flanked by AttP and AttB sites and the sequences flanked by LoxP sites will not show AVP1 activity. When crossed with plants containing stably expressed PhiC31 recombinase, PhiC31 should excise the blocking fragment (Bar gene) thus bringing together the ubiquitin promoter and the downstream Cre gene, giving rise to Cre expression, and then Cre should excise the blocking fragment (Cre gene, u6 and sgRNA) thus bringing together the ubiquitin promoter and the downstream AVP1 gene, giving rise to AVP1 expression in the hybrid plant. Using Agrobacterium-mediated transformation methodology, we are developing two transgenic lines; one with the PhiC31-containing construct and the other containing PhiC31 target sequence (AttP and AttB) as well as the Cre/LoxP gene recombination-reporter construct. The results obtained will allow for evaluation of the feasibility of using this Dual DNA Recombination System as a tool for genome engineering in plants. In addition, LEAFY RNA interference cassette, a central flowering controller, will be included along with Crisper Cas9 guided LEAFY silencing to induce total sterility in the final hybrid cultivar, preventing transgene escape in this project.

Giacomo Puccini, La Bohème: The Tragedy of Love

Thomas Passino[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Giacomo Puccini (1858-1924) showed some of the greatest potential during the late Romantic period among Opera composers with La Bohème (1896), one of the most famous operas, Puccini adapted the popular novel Scènes de la vie de Bohème, (Scenes from Bohemian Life, 1851), by Henri Murger, with the help of his publisher Giulio Ricordi. Pucccini's origins in Lucca and studies in Milan lead him to flourish in the stylistic period of late Romanticism, when opera composition originated elements of musical verismo, or dramatic realism, on the lyric stage. Although he showed great potential—even being known as the next Verdi—Puccini was no stranger to criticism and competition. Romances became stale and unrealistic, verismo benefited Puccini's need for true-to-life drama ("naturalism") admirably during the period. The complex duets and ensembles in the opera are one of the many beautiful and stylistic musical expressions, evoking rich sounds that accent the tragedy of love in the story. The Opera takes one's jealousy and confidence and expresses all they can to get the attention of those they want, and even though she is ignored, she finds her way to his heart. Experiences with love were some of Puccini's greatest inspirations, the other operas before La Bohème all include tragic love like, Le Villi and Edgar, and was not excluded from the same treatment. The correlations between his personal experiences and the music in La Bohème, expresses in the repertoire the realistic nature and the unrealistic expectations we all experience with love.

Beethoven's Four Notes of Fate

Noah Pinelli[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Ludwig van Beethoven (1770-1827) greatest works are derived from his own personal experiences he has taken on in his life. Beethoven's Symphony No. 5 in C minor, Op. 67 (1807), was his deepest and most expressive work at the time, due to the famous four-note opening motif that might be described as "fate knocking at the door." Beethoven had already composed four previous symphonies, so he was very experienced in the genre, especially with its controlling sonata-allegro form, obtained by the First Vienna School. Although he was best known for his symphonic works, Beethoven also composed masterfully in the genres of string quartets, concertos, and overtures. The Fifth Symphony was inspired when Beethoven began to lose his hearing, which sparked his struggle against deafness. More succinctly his built-up depression, anger, and melancholy occasioned by his deafness. While grappling with fate, Beethoven's musical expression is seamless throughout the entire symphony, an inspiring artistic quality that drew me strongly to this piece. Beethoven's Fifth Symphony also includes a variety of textures and rhythms inspired by the French Revolution, as Beethoven was fascinated by the war period. Therefore, the theme of the Fifth symphony is the heroic struggle, which changed what people thought music could do, and what music could be. In my analysis, I hope to reveal Beethoven's historical inspirations and influences, including those of his predecessors in the Classical style, "Mozart" or "Haydn," for this iconic symphony.

Clarifying the Waters

Allarae Prigan[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

When it comes to environmental and biological fields, the language used to convey information to the public can lead to misconceptions. In this study, these misconceptions are clarified by setting a careful characterization of several key terms such as "conservationist" or "preservationist." From there, these terms are evaluated using the case study of rainbow trout in Western New York and the Pacific Northwest. All research was acquired via biological or environmental databases and government organizations. Though language misconceptions can seem harmless on the surface, the effect of using terms incorrectly can lead to a wider array of misinformation which can affect why people interpret environmental events the way that they do.

Buffalonians and Homelessness

Ms. Maliha Rahima[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Do all Buffalonians have access to safe, affordable housing? People are facing different forms of inadequate housing and homelessness nationwide in America. Unfortunately, these issues are not correctly represented in the media or the government. This is mainly due to our society's limited understanding of what "Homelessness" could mean. Through this project, I wanted to research if people are facing similar housing issues in Buffalo. I used the Photovoice method to collect findings for my research. Utilizing the Photovoice method, meant that I walked around different neighborhoods in Buffalo and took several pictures for my research. I selected three pictures that highlighted and summarized my overall take on the housing issues in Buffalo. According to the local statistics and my Photovoice findings, I came to the conclusion that Buffalo is no different from the rest of the nation when it comes to inadequate housing. This means the city administration of Buffalo has a lot of work to do regarding this issue. My intention for this research was to draw the community's attention to the different forms of housing crisis Buffalonians are facing. Also,

through this project, I wanted to begin a community discussion regarding ways people can get involved locally to improve the current situation of the housing crisis in Buffalo.

Holst: How the Planet Revolved Around Him

Mr. Noah Reed-Eason[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Gustav Holst's (1874–1934) seven-movement orchestral suite The Planets (1914-1916) portrays our solar system (excluding Pluto, which had not yet been discovered) and its deeper expressive meanings. The musical concept of The Planets is expressed by the unique characterization found in each of its component movements. My project highlights the suite's most famous movement, "Jupiter: The Bringer of Jollity." Holst's compositional technique, artistic style, and individuality were influenced by Romantic and Modernist composers such as Richard Wagner and Arnold Schoenberg. His use of repetition, ostinato, countermelody, and syncopation bring out Jupiter's character through the music. This movement is all about the mystery, and how music can be so marvelous, but also fills listener's minds with wonder. I chose this movement to dive more deeply into Holst's artistic perspective on Jupiter and to explore the "out-of-this-world" experience of the movement. The Planets remains one of the most popular suites in the orchestral repertoire to this day for its truly awe-inspiring musical aspects

Perception of Resting Standing Weight across Various (Un)Weighted Conditions in a Lower Body Positive Pressure Treadmill in College-aged Participants

Ms. Madison Rees[1], Danielle Toth[1], Matthew Ballesteros[1], Ph.D. Erik Lind[1], Ph.D. Bryanne Bellovary[1], Ph.D. James Hokanson[1]
[1]*SUNY Cortland*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Lower body positive pressure treadmills (LBPP-TM) provide assistive body weight support to the user by forcing air into an inflatable chamber in which the user is secured. The result of this positive pressure can be experienced as a lift to the user. The degree of chamber air pressure (CAP) determines the amount of supportive lift provided with greater and lesser CAP producing more and less lift, respectively. Exercise studies consistently report lower effort perceptions with greater CAP which suggest a reduced physiological and mechanical strain on the body. What is less well known is the effect on resting perceptions of standing weight (SWP). The purpose of this investigation was to examine the perception of resting standing weight across four different weighted conditions in a LBPP-TM. Nine participants (6 female; overall age: 21.3±1.9 years) stood in a LBPP-TM under the following order of body weight set (BWset) conditions: 100%BWset, 70%BWset, 35%BWset, 90%BWset. A portable Davis Vantage weather station barometer measured CAP inside the inflatable chamber and a 10-cm visual analogue scale measured SWP. Repeated measures analysis of variance evidenced significant changes across CAP (100%BWset: 767.5±4.9 mmHg; 70%BWset: 780.0±3.0 mmHg; 35%BWset: 793.5±3.0 mmHg; 90%BWset: 776.4±7.0 mmHg; all ps ≤ 0.001) except for the 70%BWset and 90%BWset conditions ($p = 0.486$) and within SWP (90%BWset: 8.8±1.4 cm vs. 70%BWset: 5.8±2.9 cm, $p = 0.011$; and 35%BWset: 4.6±3.2 cm, $p = 0.007$) experimental conditions. LBPP-TMs appear to provide robust manipulations of perception across different experimental contexts. Similar to findings from exercise studies, greater CAP and its resultant lift produced significant reduced perceptions of standing weight while at rest.

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I Wanna Be Your Schu-Mann: Male Longing Through a Feminine Voice

Ms. Trinity Ridout[1]
[1]*Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Adversity often sparks creativity; faced with opposition from his beloved Clara Wieck's father Friedrich, Robert Schumann (1810-1856) composed the song cycle Frauen-liebe und leben [A Woman's Love and Life], op. 42 (1840). An ongoing lawsuit among the disputing parties inspired what Schumann referred to as his "year of song," during which he composed over one hundred Lieder [German art songs], many of which were written for or about his lover Clara, who was the most famous woman pianist of her time. Adelbert von Chamisso's original Frauen-liebe und leben poetry details a woman's devotion to lifelong union with her man. Schumann excludes Chamisso's final poem, which is addressed to the woman's granddaughter and describes her life and the loss of her husband. Schumann concludes instead with the eighth poem, "Nun hast du mir den ersten Schmerz getan" [Now you have caused me my first pain] which strikingly and painfully recounts the husband's recent death. This finale includes an extended piano postlude that recapitulates the first lied, connecting the couple's first meeting to the end of their life together. Schumann's musical setting throughout the cycle expresses the woman's emotions with deeper complexity than Chamisso's text. His melodic lines are exquisitely nuanced and emotionally tumultuous, conveying the woman's natural qualms alongside her joy. Schumann's own dedication to Clara Wieck began when they met in 1835 and withstood her father's hatred of him, as well as the lawsuit that would eventually grant Clara permission to marry against her father's wishes. This celebrated Liederkries was composed a few months before their wedding and perhaps reflects Schumann's own fears that his love for Clara might not ensure their happiness, and that Friedrich's accusations of his unworthiness might come to fruition. While conceived from a woman's perspective, Frauenliebe und -leben is a sensitive and honest expression of Schumann's great and encompassing love for his future wife.

Determination of T. sinensis male mating frequency through polymorphic microsatellite loci

Mr. Colm Roster[1], Marina Kessler[1], Michael O'Hara[1], Dr. William Brown[1], **Dr. Scott Ferguson[1]**
[1]*State University of New York at Fredonia*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Tenodera sinensis is a species of mantis native to Asia that engages in sexual cannibalism where the female may kill and consume the male during copulation. In some cases, males make up a large part of the female diet during the breeding season. The evolutionary maintenance of this relationship is still not fully understood. It is not clear whether the male is complicit in his cannibalism. It may be evolutionarily beneficial for males to risk cannibalism if their probability of additional mating opportunities before the end of the season is low. To develop a better understanding of this sexual relationship, the male mating frequency must be experimentally measured. Paternity measurements can be achieved by genotyping polymorphic microsatellite loci. Such polymorphic loci have yet to be identified in T. sinensis, therefore we have attempted to achieve this goal. Biotinylated probes and Streptavidin-coated beads were used to isolate microsatellites from genomic DNA isolated from mixed T. sinensis tissue. These microsatellites were then amplified and purified by PCR. The PCR products were cloned into a plasmid vector which was transformed into Escherichia coli. Candidate clones were screened by PCR and large inserts were sequenced. This sequencing yielded novel microsatellites to which we have designed PCR primers. We are

currently testing the genomic DNA of individual mantids to determine the allelic frequency of the identified loci. In the future, this variation can be used to determine the number of paternal contributors to ootheca collected from the field. In turn, this will provide insight into the number of mating opportunities male mantis can expect to have.

Uirapurú: Villa-Lobos Relentless Search for Originality

Dynelis Santana-Quintana[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Heitor Villa-Lobos (1887-1959) was a Brazilian composer known for his obsession with maintaining originality by deliberately staying away from "traditional" European composition techniques. He achieved this by infusing folkloric elements into his music, which focused on indigenous rhythms and melodies of Brazil's Pre-Contact period. Uirapurú (1917), one of Villa-Lobos best known symphonic poems, guides the listener through the story of a group of Native Indians that were lured into the forest by the song of a bird (Uirapurú). The symphonic poem is a genre commonly done in one movement, that illustrates or evokes a story, poem and/or painting. The symphonic poem genre became more prevalent during the romantic period because of its use of techniques such as word-painting and narrative arcs, because of this, Uirapurú is considered Program Music. The story found in Uirapurú was written by Villa-Lobos himself, drawing on inspiration he found in stories told to him by his father in his childhood. As an artistic modernist, Villa-Lobos remained unafraid to attack the boundaries of compositional techniques, form and orchestration following the footsteps of early 20th century composers such as Shostakovich and Stravinsky. Because of Villa-Lobos' desire to maintain originality in his music, he avoided serious instruction in European technique and artistic practices. Instead focusing on listening and studying books and articles on Brazil's indigenous musical expressions, with the goal of injecting as much of this style as he could into his own works. Despite Villa-Lobos strenuous efforts at originality, it was still possible to hear derivations of composers such as Debussy, Wagner, and Stravinsky. I shall explore how Villa-Lobos created his own unique space within the classical music genre.

Look What the Cat Dragged in: Mechanisms of Blindness in Genetically Modified Mice

Vanessa Schoen[1]
[1]*SUNY University at Buffalo, Department of Biological Sciences*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Corneal endothelial cells pump fluid from the cornea to keep it clear. Once interrupted by changes such as cell death, the fluid remains within this tissue causing it to swell and become cloudy, thus impairing vision. Within these endothelial cells is the sodium bicarbonate cotransporter (NBCe1), and the proton transporter (Slc4a11) which both act to maintain fluid transport as well as intracellular acid-base balance. Mutations in either of these genes lead to vision loss in human and mouse models. Using immunohistochemistry techniques, this project aims to determine if these two membrane transporters act together or separately in maintaining fluid transport in the cornea of both wildtype and NBCe1 knockout mice. Chromogenic staining for expression of Slc4a11 and NBCe1 in murine corneas found that both proteins were expressed in wildtype mice. Meanwhile staining in NBCe1 knockout mice detected no presence of NBCe1 as well as a lower amount of expression of Slc4a11. Thus, indicating that removal of the NBCe1 protein results in decreased levels of Slc4a11, and that these two proteins are likely to be linked either functionally or physically. By

investigating the role of these membrane transporters in the swelling of the cornea, it can be determined whether these can be a possible target for future therapeutics for this disease.

Mental Health and Poverty-The Chicken and the Egg Problem

Mr. James Sciandra[1]
[1]*SUNY Buffalo State*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Throughout society it is eminent that mental health and poverty are two great problems our world faces, but does poverty cause mental health issues or does mental health problems cause poverty, and what does this look like in Buffalo compared to the rest of America? Nationally, poverty has been linked to mental health which affects parents and children mostly, while also creating a never ending cycle of chaos in one's life. I used photovoice to document and take pictures of direct examples in the community of Buffalo. By using photovoice I was able to go around Buffalo and take up to 50 pictures and narrow down to my best three to exemplify mental health and poverty in Buffalo. Buffalo has a not so good reputation attached to it as of late when it comes to poverty, the city has a poverty rate of 30.1% in 2019, this is nearly triple of the national average which is 10.5%. My poster will show that Buffalo is no different from the rest of the country–people in poverty struggle with mental health. While my research cannot answer which came first-poverty or mental health- it will show that poverty causes increased stress which can impact mental health and that mental health issues can create barriers to someone getting and staying out of poverty. I hope that by getting to take a look at this it can inspire individuals to make change in their community and support those who struggle with poverty and mental health. Poverty and mental health is a problem in Buffalo, learn on how you can help the issues directly.

In 50 Years, Minorities will be Homeless

Rashida Scott[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My project will examine if African Americans experience unfair lending practices in Buffalo and how that has impacted home ownership and overall wealth in Buffalo. Homeownership is a steppingstone to wealth in American society, it can be leverage or even willed, to give future generations an economic head start. Due to unfair lending practices this wealth is disproportionally distributed. African American’s and other black minority groups are more vulnerable to foreclosure than white homeowners. More than a thousand minority families are at risk of losing their homes because of unethical practices of lenders. Photovoice methodology will be used as a form of collecting data in correspondence with other materials. The photovoice method is a process that includes taking images of the community and specific issues being researched. It allows for a more intimate connection between the researcher and the researched. As a result of my research, I can conclude that the practices of lenders and the framework for housing policies has allowed the racial wealth gap to continue to increase. Buffalo prevents minorities from homeownership. The goal is to highlight how these unethical practices have been allowed throughout history, how it affects the Buffalo community specifically, and to generate ways to create long lasting change.

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Synthesis of Heterogeneous Backbone Containing Peptidomimetics Through The Solid-Phase Approach Using N-tboc Protected Heterocyclic Amino Acids

Gabriel Smith[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Foldamers that are created using novel chemical scaffolds demand careful chemical crafting, this is because the resultant oligomer should preserve the native backbone peptide conformation while maintaining the intramolecular H-bonds and the sidechains' orientation in the 3D space. With the ever-increasing proteomic complexity, the novel chemical scaffolds that render structurally diverse foldamers are in huge demand. These foldamers-derived mimetic peptides can be used towards studying several biochemical mechanisms under normal and diseased states. With this aim, we recently reported a synthesis of N-tboc-protected amino esters through Buchwald Hartwig amination and showcased two dozen structurally and functionally diverse amino esters. Based upon the observed differential rate of reaction among the aromatic halo esters, we also proposed a plausible reaction mechanism. Currently, we are exploring the compatibility of these molecules towards creating a heterogeneous backbone containing peptides and peptoid through a solid phase synthesis approach.
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Use of lignocellulosic nanocrystals derived from hemp as adsorbents for the removal of anionic and cationic dyes

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[1]*SUNY Environmental Science & Forestry*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Increased anthropogenic activity has strained solid waste management and water treatment systems leading to the need for sustainable solutions. Adsorption is a separation technique with low energy intensity used in many purification processes. While nano-adsorbents possess higher removal capabilities, they tend to be highly toxic and non-biodegradable. Cellulose nanocrystals (CNC) are produced from purified cellulose, are sustainable and biodegradable, making them interesting nanomaterials for water treatment technology. To increase adsorption capacity, cellulose is functionalized with synthetic chemicals to increase reactivity oftentimes decreasing sustainability. Lignin, a structural component of lignocellulosic biomass, possesses numerous chemical functionalities, enhancing potential interactions with aqueous pollutants. The aim of this study is to show that unpurified lignocellulosic materials derived from agro-food wastes are an underutilized and cost-effective source for nano-adsorbents. Lignocellulose nanocrystals (LNC) will be produced from hemp processing waste, a growing class of agro-food waste. The morphological, chemical, and hydrodynamic properties and adsorption performance of LNC will be analyzed against commercial grade CNC. The batch adsorption behavior of model anionic (methyl orange) and cationic (methylene blue) dyes on LNC vs CNC will be compared through a series of batch adsorption trials. Adsorption kinetic experiments will determine the adsorption rate. Adsorption equilibrium experiments will determine the

adsorption capacity. Adsorption studies into the effect of pH and salinity will determine the versatility of adsorption in varied environmental conditions. We expect that the highly reactive nature of lignin present in LNC will result in comparable adsorption rates, but higher adsorption capacities for both methyl orange and methylene blue. LNC adsorption is expected to be more extensive in varied environmental conditions than CNC due to the limited surface functionality of CNC. This work will demonstrate that extensive pretreatment is unnecessary for nanocellulosic adsorbent production and open an additional pathway for agro-food waste valorization for environmental remediation.

Methodology and Variance of Quartile Calculations

Dr. H. Joseph Straight[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

In many rudimentary statistics courses, students are introduced to the concept of the quartile, or the division of the observations of a given data set into four pieces of equal value. These statistics can give useful insight into the true nature of the population from which the data was observed, and provide useful information for analytical and predictive purposes. There are many technologies that are capable of calculating the quartiles of a data set, including RStudio, Microsoft Excel, TI-NSpire™ CX CAS, and many others. However, there is no one accepted method for calculating quartiles. There are many different methods, each approximating quartile values in different ways. Which of these methods is the most accurate? Which can be counted upon to have the most consistency? This study seeks to answer these questions using various statistical and analytical measures.

Changes in Resting Systolic Blood Pressure during Unweighted Conditions in a Lower Body Positive Pressure Treadmill

Danielle Toth[1], Madison Rees[1], Matthew Ballesteros[1], Ph.D. James Hokanson[1], Ph.D. Bryanne Bellovary[1], Ph.D. Erik Lind[1]
[1]*SUNY Cortland*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

During exercise, lower leg muscle activation has been shown to increase venous return, exercise cardiac output, and arterial blood pressure (BP). Here we investigate BP at rest, with an increase in lower body pressure by unweighting volunteers in a lower body positive pressure treadmill (LBPP-TM). The purpose of this study was twofold; to determine if BP changes while standing over five-minute stages in response to four conditions. Nine participants (21.3±1.8 years) stood in a LBPP-TM in the following ordered conditions: 100%BWset (no unweighting, control), 70%BW-set, 35%BWset, and 90%BWset (35%BWset is the greatest unweighted condition). A SunTech® automatic BP cuff measured systolic and diastolic BP (SBP and DBP, respectively). SBP and DBP was measured once during 100%BWset and averaged over the five-minute stages during 70%BW¬set, 35%BWset, and 90%BWset. A portable Davis Vantage weather station inside the chamber measured chamber air pressure (CAP). Repeated measures analysis of variance evidenced significant differences in only SBP ($p = 0.006$) at 100%BWset (no unweighting) and 90%BWset (129±11 mmHg and 120±8 mmHg, respectively). DBP did not show any significant differences across conditions (ps > 0.091). CAP at 100%BWset (767.5±4.9 mmHg) was lower compared to 70%BWset (780.0±3.0 mmHg), 35%BWset (793.5±3.0 mmHg), and 90%BWset (776.4±7.0 mmHg) ($p<0.001$, $p<0.001$, and $p=0.001$, respectively). 35%BWset CAP was also higher than 70%BWset and 90%BWset (ps<0.001 for both), but 70%BWset and 90%BWset CAPs were not different ($p = 0.486$). The initial findings suggest a quick reduction

in CAP (35%BWset to 90%BWset) may decrease SBP below starting levels at 100%BWset. Though the sample consists of healthy, young adults and there was only a 9.0 mmHg decrease in SBP, individuals who are intolerant to SBP changes or older adults may need a slower reduction in CAP from highly unweighted conditions to account for SBP changes as they return to baseline CAP.

How Hygiene is Associated with Poverty

Ms. Eden Urbanek[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

My research presentation will be based around hygiene and how it affects poverty in Buffalo. Most people fail to realize the domino effect hygiene has on pushing those towards poverty, or pushing those already in poverty deeper down its seemingly inescapable hole. People across the United States in poverty struggle with staying clean, such as washing hands, showering, having a place to use the restroom, and so on and so forth. Due to these obstacles, obtaining and keeping a job becomes more of a challenge than it typically is. Poor hygiene in children whose parents cannot afford things like diapers or new clothes affects their work and child care situation(s). I want to see how these specific topics relate to those living in poverty in Buffalo, and research ways in which these issues can be solved or at the very least how to support those who find themselves in these situations. I will be using Photovoice to showcase this issue by capturing images in which I believe represent poverty and hygiene in Buffalo. Many people do not attribute personal hygiene with poverty. I expect to find surprising data with higher-than-expected numbers. My research poster will help to bring more attention to this issue. I anticipate my future research to be as shockingly informative to everyone who reviews it as it will be to me. Hopefully, after viewing my poster, people will feel motivated to take action and seriously address this issue locally.

Tin-based Perovskite Solar Cells: Analysis of Machine Learning for Simulated Bromine Doped Solar Devices

Mr. Joseph Wikar[1]
[1]SUNY Buffalo State

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

With the need and demand for alternatives to fossil fuels in the clean energy sector, perovskite materials (with an ABX3 structure, where A is the cation species, B is the metal and X is the halide) are a key area of research because of their high performance and low costs in utilization within solar devices as the light capturing material. Ideally, we are looking for non-toxic versions of these materials that are good for the environment and inexpensive to replicate. The current standard for perovskite solar devices is to use a lead-based material which showcases high efficiency and stability, however this is not necessarily good for the environment. In this study, tin-based perovskite material based solar devices were analyzed using supervised machine learning (ML) to accurately predict the optimum bromine doping concentration in the perovskite layer. Certain material parameters were specifically chosen in this line of study due to their tunable and modifiable nature. These parameters include halide doping %, electronic bandgap, electron affinity, device series resistance, back contact metal of the device, and acceptor concentration. The first step performed in the process was analyzing a purely tin based system to determine the device power conversion efficiency (PCE) to achieve a baseline value of 6.71% for the data before any bromine doping was simulated. To perform these simulations over 42,000 different devices were built using a program called a solar cell capacitance simulator (SCAPS). The goal of the study was to find what level of bromine doping

yielded the highest PCE return. Throughout the course of the investigation and using the algorithmic and machine learned tools, final PCE values of 20.72% for Br22 and 17.37% for Br25 were achieved (with Br22 indicating bromine levels of 22% and Br25 is 25%, with the remainder being iodine). Compared to alternative lead-based perovskite solar devices which yield an average PCE of 23%, the bromine doped tin based devices give very comparable performance to their lead-based counterparts. The research highlights the importance of utilizing smart data analytic methods to pursue alternative materials that that yield a high-power output and are safe and non-toxic.

Enchanting Musical Library

Mr. Nicholas Willard[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The Buffalo Music Hall of Fame currently has their database formatted into an Excel file and are looking towards new ways that they can improve their database management, entries, and reports. This research project looks towards transferring the Excel spreadsheet into a SQL database, then linking it to another database. It will also create reports based upon data in the database as well as being connected to a form so that the users may fill out data on the front-end and have it saved to the database. The reason for this is because users will have an easier time uploading data into a form rather than scrolling through an Excel file where they may accidentally enter data into a wrong row. The programming languages that will be used for creating the database, report, and forms are PHP, HTML, CSS, and SQL. One of the preliminary concerns for this project is that the programming language being used may be swapped at a later date due to not knowing which environment will be used for the code. The purpose of this project is to simplify the data entry process and create a more flexible and long lasting way to generate the data within the database into a meaningful result. Something that the audience can expect from this project is a working database that is connected to a form and capable of retrieving the data while also being able to create a report.

High Cost of Housing across America: Foresight of Buffalo New York

Robert Williams[1]
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Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The question I am seeking to answer in my research is, Does Buffalo have affordable housing for people living in poverty? People across the country are struggling to stayed housed because wages have not been growing significantly for decades while housing costs soared. I am going to use Photovoice to see whether or not if the cost of housing is affordable in the city of Buffalo. Photovoice is a participatory research method where you go out and take pictures and you utilize these pictures to describe, explain, reflect, reflect upon documents, and communicate issues of concerns. I went out to the city of Buffalo, and the area of Williamsville on different occasions and took over 25 photos overall and narrowed them down to ones I believe fit for the best representation of the topic. I completed a SHOWeD analysis to help folks understand my perspective of what I was seeing in these photos. For the results, I narrowed my overall selections of photos down to 3 on my poster. These photo's draw a connection between what's happening here locally in Buffalo and Williamsville to what's happening nationally. We can see from these photos and local statistics that housing is a problem in Buffalo. Based on knowledge, I may see a great deal of homelessness. With my research poster, I am hoping this will raise community awareness, and encourage policy change.

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Inhibition of Pseudotype SARS-CoV-2 Viral Entry

Ms. Isabel Yu[1]
[1]*University at Buffalo*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

Coronaviruses are a family of viruses responsible for many upper respiratory tract infections including COVID-19. The global pandemic of SARS-CoV-2, the virus responsible for COVID-19, has underscored the need for further therapeutics that can be used against future variants and other pathogenic Coronaviruses. This research focuses on disrupting protein-protein interactions that are crucial for viral entry and infection with the aim of developing pharmacological agents that can be tested for use in the future. These must be highly specific and selective in order to minimize adverse side effects. SARS-CoV-2 depends on interactions on the viral spike protein for successful viral entry. These interactions are highly conserved during the process of viral entry and make ideal sites for inhibition of protein-protein interactions. The finding of small molecules able to interfere with the interfacing proteins was done by using novel computational prediction methods designed by a collaborating PI, these proteins were ranked based on binding energetics. Then inhibition was tested using a pseudotype virus assay to find if viral entry was reduced at varying dilutions of the predicted proteins. Research conducted thus far has shown two compounds that have exhibited inhibiting effects in the pseudovirus assay and they are entering testing in live SARS-CoV-2 in BSL-3 assays. Further research is still being conducted on other compounds in the pseudovirus assay phase to find more inhibitory molecules. This current study is important because it helps to streamline the process of finding, testing and implementing new therapeutics and can be used in other virus models. This is crucial as zoonotic diseases begin to pose a greater threat to humanity.

Putting the "fruit" back in the Fruit Belt

Jared Zajac[1]
[1]*Buffalo State College*

Poster II, SAMC Atrium, April 23, 2022, 10:45 AM - 11:45 AM

The dilemma I'm trying to address in my research is what does access to healthy food options look like for residents living in poverty in the Fruit Belt of Buffalo, NY. In America low-income neighborhoods are dotted with fast food restaurants and corner stores. The issue stemming from this is that while there are plenty of options to eat, they are all high calorie and low nutrition. Children of these areas whose eating habits are formed in childhood become more susceptible to chronic health issues and added healthcare costs later in life. I plan to go out and explore this issue using Photovoice to see what the Fruit Belt residents have available to eat. Photovoice which employs photography will allow me to present visual images of what I found. I will give you the viewer my best representative photos concerning this issue. Through a SHOWeD analysis you'll view the pictures from my perspective. I expect to find a place that was originally named the fruit belt for all the gardens its settlers planted, has barriers to getting high nutrient foods these days. Low-income areas in Buffalo continue to struggle with making healthier options easier to obtain. My poster will include ways to help put the "fruit" back in the Fruit Belt and make healthy eating accessible to everyone.

Document Identification System

Karina Zayas[1]
[1]*Buffalo State College*

The research project consists of working with a company called Paychex, Inc. This company is known as a provider of human resources, payroll, and benefits outsourcing services for small to medium-sized businesses in America. The project team consists of a development team from Paychex and a group of students from Buffalo State to construct a program. This program will solve the issue of clients requiring paper documentation that Paychex utilizes for their electronic document completion process. The program will also provide a paper completion process that can be seamlessly integrated into the existing onboarding tracking system. It will affix a unique identification (QR-Code) to a set of electronic documents that are to be manually completed by Paychex clients. When the documents are returned the system should accept the PDF submissions and recognize the QR-Code. It will also determine if the document is complete (signature and prioritized pages), and provide feedback on the content of the submission. The program should be able to output multiple documents, with each page uniquely labeled. It will also accept PDF submissions that contain multiple documents in a single file. The team will use the Agile development style to work together, communicate, and self-organize through the use of the Scrum framework. A JIRA board will be applied to demonstrate the progress of the project. The language for this program will be Java. A variety of Java packages are used to perform the functions of the project.

Dance Performances

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Legacy in Dance

Alijah Giscombe[1], Evelyn Grapes[1], Janiah Lawrence[1], Carly Nolan[1], Manny Stephens[1]
[1]*Buffalo State College*

Dance Performances, Student Union-Social Hall, April 23, 2022, 12:45 PM - 1:00 PM

Performers: Alijah Giscombe, Evelyn Grapes, Janiah Lawrence, Carly Nolan, Jeila Rainey, Manny Stephens
Choreography: Naila Ansari and Salvatore Giangreco-Marotta (Buffalo State '21)

The Buffalo State Dance program's spring semester concert, Legacy in Dance, combines a video montage with live performance to celebrate dance at Buffalo State College. As part of the 150th Anniversary celebration, Legacy reflects on collaborations between faculty choreographers and student artists over the past three decades. Performance at Buffalo State offers the opportunity to dive deeply into why and how dance is created and experienced. The performers represent students across campus who come to dance via many pathways: the Theater Department's Dance program minor; the School of Arts and Sciences B.A. in Arts and Letters major; and those from outside the traditional curriculum with a passion for movement. This presentation explores a variety of approaches to the creation of dance, as well as several genres and their significance to the art form.

Herstory - Performance as Social Change

Ms. Madison Harding[1], Natasha Frank, Kiera Horan, Thalia Maynor, Alexandria Richards
[1]*SUNY Geneseo*

Dance Performances, Student Union-Social Hall, April 23, 2022, 1:05 PM - 1:20 PM

Performers: Natasha Frank, Madison Harding, Kiera Horan, Thalia Maynor, and Alexandria Richards
Choreography: Andrae Dunwoody

Herstory (Her-story) is a new dance work celebrating the struggle and strength of women choreographed by Andrae Dunwoody. The new work fuses modern, street jazz and hip hop to music by Dianne Reeves and Janet Jackson. Herstory powerfully weaves individual narratives of women that speaks to a shared and collective experience across differences. Herstory developed out of a new academic microcredential program Performance as Social Change. The program promotes an understanding of the critical role arts-based performances play in facilitating and advancing social change through interdisciplinary coursework. Through a collaboration with the guest artist Andrae Dunwoody from Rochester, New York, students drew on their lived experiences and research in the course to create the dance. Originally composed of eighteen students, Herstory is restaged with five dancers. Restaging the work offers students an opportunity to further develop their character and the interpretation of the dance for new audiences. Designed with an expressed commitment to diversity, equity, inclusion and racial justice, students exit the course with a broad array of transferable skills and competencies related to social change, leadership, multiculturalism, civic engagement, research, communication and performance.

Wastelands: A Firsthand Perspective on Consumer Culture

Mr. Jonathan Bolt[1]
[1]*SUNY Buffalo State*

Afternoon Art Display, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Spotlighting waste created by the overconsumption of goods, this project exposes flaws in American consumer culture and its underlying ideologies and labor practices. Photographed in the form of thrown away items at a thrift store where I am employed, transforming objects such as toys, electronics, plastics, Christmas decorations, etc. into subject matter for the creation of artwork. My aim was to document this form of waste by means of a process called photogrammetry, thus producing full three-dimensional documentation of the consumer waste I've encountered. My work combines photogrammetry scans to create altered 3D landscapes made entirely of wasted consumer goods. The artistic impetus is to overwhelm the viewer with the sheer quantity of objects presented. This work reflects on the number of items we purchase and the speed with which these items inevitably become waste, posing questions about our habits as consumers. My works take inspiration from sublime landscape painting, and updating this tradition, convey our awe not for the landscapes themselves, but for wasteful behavior, consumer culture, and an endless desire for more stuff.

Innovation in Vegas: Travelling to the AWFS Fair

Susan Koloski[1]
[1]*SUNY Buffalo State*

Afternoon Art Display, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

In July of 2021, the Association of Woodworking and Furnishing Suppliers (AWFS) held its biennial fair and student design competition in Las Vegas, Nevada. AWFS is the largest national trade association in the United States which represents the interests of many companies that supply the home and commercial furnishings industry. A Wood/Furniture Design Major at SUNY Buffalo State College, Susan Koloski's piece, Revolution, was chosen as a finalist to participate in the competition. This opportunity also presented important challenges, such as, learning how to ship a piece of art across country, networking oneself in a group of peers, and being savvy with expenditures and travel fees. The Undergraduate Travel Research Award was used to offset the cost of air fare; this was helpful because at that time the price of materials used to build the shipping crate were unprecedentedly high.
The AWFS Fair is an immersive learning experience for anyone interested in production, technology, machinery, and furniture making. From booths occupied by the largest tool makers showing the latest technology, to master creators who have been in the field for decades, there is a wealth of knowledge to be found at this fair.

Overlooked and Victimized: Celebrating and Remembering African Americans

Bree Gilliam[1]
[1]*Buffalo State College*

Afternoon Art Display, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

This creative project focuses on celebrating and commemorating eight individuals in the African American community through portraiture. Throughout history, portrait paintings were used to honor and remember the deceased and influential people. In this project, four of the eight portraits include prominent individuals deserving of celebration, such as Dr. Kathrine Conway-Turner, Assemblywoman Crystal Peoples-Stokes, David Driskell, and Cariol Holloman-Horne. The remaining four portraits include those who have faced and lost their lives to violence and racism and deserve to be remembered, such as Isaac Woodard, Breonna Taylor, George Floyd, and Daniel Prude. The oil paintings are painted on canvases that range from 18 inches by 24 inches to 24 inches by 36 inches. The methods of modern and contemporary painters such as John Singer Sargent, Jordan Casteel, and Kehinde Wiley were studied and applied to ensure the best results. So often, people view these overlooked and victimized individuals as statistics or names that many will forget. However, this project is significant because it acknowledges the humanity of these critical people.

Effect of COVID19 isolate on viability of mouse auditory cell lines

Hay Young Kwok[1]
[1]*University at Buffalo*

Afternoon A3, SAMC 151, April 23, 2022, 1:30 PM - 2:30 PM

Our objective is to test the effect of COVID19 infection on hearing loss. We are testing the COVID19 isolate on cochlear cell lines. Primarily, our focus is on the cell viability which will lay ground for future studies. By learning about how Covid19 affects auditory cells, we can better understand the virus and its relationship with hearing loss, hence helping to fight it and developing methods to limit its effect, or even potentially generalize the idea on other spike protein viruses.

Copper-catalyzed α-Alkenylation of Ketones Using Primary Alcohols and Primary Aldehydes

Muhammad Musozoda[1], Muhammadzohir Hidoyatov[1]
[1]*SUNY Oswego*

Afternoon A3, SAMC 151, April 23, 2022, 1:30 PM - 2:30 PM

α, β-Unsaturated ketones have been used in many life saving drugs, food preservatives, and pesticides. They can be synthesized using metal (I) catalyzed α-alkenylation of ketones using primary alcohols and primary aldehydes. Use of alcohols and aldehydes which are abundant and cheap makes these reactions budget friendly. A new methodology using copper catalyzed reactions with the use of N-phenylpicolinamide (NPPA) as ligands was developed to provide higher yields at low temperatures. The results with various metal catalysts, solvents at various temperatures as well as various electron rich and poor substrates will be discussed.

The survival, behavior, and physiology of Amblyomma americanum and Ixodes scapularis

Antonio Pepe[1]
[1]*Farmingdale State College*

Afternoon A3, SAMC 151, April 23, 2022, 1:30 PM - 2:30 PM

In the United States, the widespread impact of tick borne illnesses has had decremental effect on public health. We hypothesize that survivorship, questing frequency, and questing height are positively associated with relative humidity and are negatively associated with rate of water. In order to test this hypothesis, the two tick species (Amblyomma americanum and Ixodes scapularis) were weighed, then subdivided into three different humidity treatments (32%, 58%, and 84%) and exposed to a variation of temperatures respectively. At the highest temperature of the cycle (35°C) survivorship, questing frequency and questing height was recorded. Once the tick died, the tick was weighed again and the water loss was measured. The results of this experiment exemplified that survivorship has a positive association with relative humidity and both questing height and questing frequency is not changed by humidity treatment. In addition, individual questing height and individual questing frequency are not significant factors for water loss. Through the

experimental process we look to achieve a connection to the behavior of the tick to its physiology, which would further our understanding on how ticks are expanding and an increased prevention of the harmful diseases they transmit.

A Shortcut to Cutting Triangles

Ms. Olivia Sylvester[1]
[1]*SUNY Fredonia*

Afternoon A3, SAMC 151, April 23, 2022, 1:30 PM - 2:30 PM

Given a 3, 4, 5 right triangle, what is the shortest cut which will divide this triangle into two pieces of equal area? We will provide the answer to this question and present how this can be generalized to any triangle. The method used to obtain this answer can be generalized to dividing any triangle into two pieces in which the ratio of their areas is any fraction between 0 and 1. For example, the areas could be ⅓ to ⅔ . This question can be extended in a number of ways. For example, suppose one wishes to divide a quadrilateral into two pieces whose areas are a given ratio. Another direction is extending this to finding a minimal area plane that divides a tetrahedron into two regions whose volumes have a given ratio.

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Central Movement: How United States Interventions Inspired the Migration Crisis from the Northern Triangle

Gabrielle Corvest[1]
[1]*SUNY Fredonia*

Afternoon B3, SAMC 170, April 23, 2022, 1:30 PM - 2:30 PM

This research examines the factors behind the migration waves from El Salvador, Guatemala, and Honduras to the United States, all three countries of which have and are currently experiencing violent conflicts and economic turmoil in part as a result of the United States interventions during the cold war with the Soviet Union. These migrations have helped lead to current social conflicts, economic impacts, and political policy surrounding immigration within the United States. The objective with this research is to pursue the history behind these US interventions within El Salvador, Guatemala, and Honduras, investigate the factors that lead to mass migration into the United States, and explore the political policies, economic impacts, and conflicts that have occurred within the northern triangle that continue to impact the US-Mexico border. This research will be broken into three sections: an overview of the early US Interventions that lead to the later conflicts throughout these three central American countries, an examination of the events and US interventions during the cold war period, and an analysis of the migration out of these regions into the United States and its impacts. Two themes that are prevalent throughout this investigation are that the relationship between the United States and Central America is interdependent through trade, and that geography plays a central role in the complicated connection between the countries focused on in this research.

Resurgam: A Wedding Dress and The Fabric of Identity

Ms. Grace Croop[1]
[1]*Buffalo State College*

Afternoon B3, SAMC 170, April 23, 2022, 1:30 PM - 2:30 PM

"No man or boy, within that part of Great Britain called Scotland…will wear or put on the clothes commonly called Highland Clothes (that is to say) the plaid...or any part whatsoever of what peculiarly belongs to the highland garb…"

The Proscription Act of 1746 put in place by the Parliament of Great Britain acted as a means to suppress several forms of the Scottish culture throughout the country: including the well-recognized woven tartans of clans and royal houses. As a result of this restriction, several existing weaving mills, skilled individuals of the trade, and their work had to cease, or continue their work in secret despite the law.
However, the prohibition of tartan and its uses did have some limits and technicalities in its wake. The declaration only banned the use of Highland dress for men and young boys, but did not extend that same constraint toward women. As a result, several examples of feminine dress which utilize the familiar plaids were recorded toward the conclusion of the century. One such garment which survived the period: is the wedding dress of Isabella MacTavish, dated from January 1785. The significance of the gown in question is present within the fabric used throughout: a woven plaid with the formal dress colors of the Fraser clan.
In order to address the question of 'I Wish I'd Been There' posed by Dr. Nicholls, Bryon Hollinshead, and Theodore Rabb: this thesis analyzes both the creation of MacTavish-Fraser's gown, and how the bans against the culture of the Scottish Highlands affected both the process and future of the craft, and Scotland as a whole.

The Fall of the Berlin Wall and What it Meant for East and West Germans in 1989

Rebecca Lamastra[1]
[1]*SUNY Buffalo State*

Afternoon B3, SAMC 170, April 23, 2022, 1:30 PM - 2:30 PM

This paper will explore the divide between the people and cultures in Central/Eastern Europe versus those in Western Europe, and how they perceived the fall of the Berlin Wall. After its fall, Germany may have been politically reunified, but in many ways, still remained divided. This paper will also explore the lasting effects of the fall of the Berlin Wall on West and East Germany, as well as how it is perceived to be a symbolic end to the Cold War in Western History. There is a large divide between how people in Central/Eastern Europe view the end of the Cold War and the end of the Soviet Era, compared to the viewpoints in the West. For Western Europeans, the fall of the Berlin Wall symbolizes a reunification of Germany and an end to communist rule in the region. However, for Central and Eastern Europeans, the year 1989 and the fall of the Berlin Wall had a different meaning. Information will be gathered from a number of primary sources, including videos of news broadcasts and interviews to show the prevalent struggle between the Capitalist and Communist political systems and economies that existed in West and East Germany. Personal accounts from citizens residing in East and West Germany during the fall of the Berlin Wall will be used to show that the reunification of Germany was an emotional and impactful event of Democratic change for both East and West Germans, as well as the world as a whole. These sources will provide insight to the differences in culture that existed in East and West Germany, while also showcasing the different sides of the wall and the viewpoints of those living both inside and outside the wall. Famous speeches, from those such as President Ronald Reagan will also be utilized, to show the Western hemisphere's stance and involvement in the taking down of the wall. Other sources include books written by historians about the fall of the Berlin Wall, that also contain some background information on Germany before it was divided and after.

Union Jack and Imperial Eagle: An Examination of Nationalistic World War I posters used by Great Britain and Germany

Jacob Maloney[1]
[1]*SUNY Brockport*

Afternoon B3, SAMC 170, April 23, 2022, 1:30 PM - 2:30 PM

World War I was a new type of war that targeted the domestic sphere through propaganda. Government agencies on all fronts hoped to enhance feelings of nationalism to control public opinion of the war. Great Britain and Germany used similar systems of propaganda despite being on opposing sides. They both used allegorical figures, satire of political figures; stereotypes of national heroes and leaders; and dramatized caricatures. Yet, their ideologies, philosophies, and systems of government differed and consequently led to drastically different outcomes of the war. The posters used span the entirety of the war, showcasing how each nation's messages shifted as they were either victorious or defeated. Using similar styles of imagery, the British democracy contrasts with the militaristic 'kaiserism' of Germany. The distribution of these propaganda posters also revolved around each nation's style of government bureaucracy. German propaganda posters contrasted with the reality of domestic and moral defeats during the last years of the war. A German campaign to manipulate their image in order to maintain alliances with small nations failed as their atrocities counteracted this. Britain's propaganda efforts were more effective and Germany could not use sympathetic imagery since they were the aggressors, helping turn Britain from underdog to victor.

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Supernatural: Is Destiel Canon?

Ms. Taviola George[1]
[1]*Farmingdale State College*

Afternoon C3, SAMC 173, April 23, 2022, 1:30 PM - 2:30 PM

Shipping in fandom is deeply connected to the politics of the LGBTQ+ community. Supernatural's Destiel (the ship between Hunter Dean Winchester and the Angel Castiel) is one of the Internet's most popular ships. In the final season of Supernatural, Castiel confessed his love to Dean Winchester, igniting a Twitter discourse about whether Destiel is truly canon. This argument has larger implications for queer representation, critiques of shipping, and how homophobia persists even as it is less tolerated. This project uses digital ethnography and content analysis of Twitter to explore how fans interpreted the Supernatural finale and the canon status of Destiel. As a research assistant on this project, I collected hundreds of tweets both in real-time and at the time of the finale. We identified two types of response: pro-shippers and anti-shippers. Pro-shippers were divided into two subcategories. First, some were happy that there is a meaningful representation from one of the biggest shows or had an idealistic view of Dean's reaction. However, the other subcategory shows a negative reaction, seeing this as a case of "Bury Your Gays" or having the cynical view of his reaction. While the anti-shipper camp rarely uses slurs, they cover their subtle homophobia with critiques and try to use the show's canon to discredit pro-shippers by framing them as "bullies" or a "loud minority." This shows that while homophobia is becoming less tolerated, it does not mean it is gone. In fact, it has become more subtle, which challenges the idea that we live in a post-gay world.

Mama Ru: Examining RuPaul's Warped Drag Empire Through Foucault's Analysis of Power

SADIE GREENBERG[1]
[1]*SUNY Purchase*

Afternoon C3, SAMC 173, April 23, 2022, 1:30 PM - 2:30 PM

This paper investigates how the complexities of gender roles within modern drag have been reinforced by mainstream media's most prominent representation of drag: RuPaul Charles. Drag was once an art which celebrated penetrating the barriers of the gender binary and played on the tension within breaking those barriers. However, since the debut of reality show RuPaul's Drag Race in 2009, drag has transformed into a performance of a narrow adhesion to the societal ideals of femininity. Due to the show's reliance on commercial success, the original purpose of drag as a queer art form has been diminished to appeal to the entertainment value of non-queer viewers, turning drag into a spectacle for straight, cisgender viewers to watch. In this piece, RuPaul's reinforcement of strict standards of femininity onto drag performers is examined through Michel Foucault's concept of power. Through the ostracization of performers who attempted to escape the presentation of strictly feminine traits, and the praise of those who conformed to her ideals, RuPaul continues to construct binary expectations for the drag community, as well as for the mainstream culture observing the community. In order for drag to be appreciated in its most authentic and striking form—one that deconstructs the gender binary—I argue that there is a necessity for a conversation examining the ways in which hyper-feminine expectations are placed onto modern and mainstream drag performers.

The Women's Liberation Movement: We're Still Beautifully Angry, and You Should Be Too

Cait Malilay[1]
[1]*Buffalo State College*

Afternoon C3, SAMC 173, April 23, 2022, 1:30 PM - 2:30 PM

This research project will take the form of a podcast analyzing the women's movement of the 1960s and 1970s, and show how women were portrayed in the news media at the time, reflecting the reception of their cause by the public. To explore this history, I will analyze the documentary film, She is Beautiful When She's Angry (2014), directed and produced by Mary Dore, to investigate how anti-feminist stereotypes were re-defined and weaponized as a motivation for empowerment. It is notable that this happened in a time when most contemporaneous revolutionary social movements, such as the anti-Vietnam protests, Students for a Democratic Society and Black Power were mostly male dominated, as Variety sums it. The Women's Liberation Movement included a wide variety of women organizations to combat the patriarchal system. Rhetorical strategies used by the women's liberation movement, and the effective employment of ethos, logos and pathos in their arguments influenced a generation. The podcast will include an interview with an academic who specializes in feminist theory. In addition to the documentary film, the study will draw from feminist theory, discuss how race played a role and the ever-changing definition of masculinity and femininity in relationship to the tactics of the women's movement.
Faculty Mentor Information:
Dr. Meg Knowles
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On The Weird Island: A Journey Towards a Queer Reading Practice Through Aimee Bender's Short Fiction

Addison McDaniel
[1]*Purchase College*

Afternoon C3, SAMC 173, April 23, 2022, 1:30 PM - 2:30 PM

This presentation examines Aimee Bender's short-story form in The Color Master to conceptualize what it means to journey towards a queer reading practice. In this paper I focus on select short stories ("On a Saturday Afternoon", "Appleless", and "Wordkeepers") as a lens for re-thinking foundational contributions to queer theory for our 21st century moment. For example, my work turns to Jose Esteban Muñoz to assess Lee Edelman's groundbreaking text, No Future. Read together, The Color Master and recent queer theory texts provide a new theoretical groundwork for thinking about "orientation." I argue that the complicated queerness of Bender's short stories can help us navigate our contemporary moment. Bender's characters struggle with language, gesture, and communication in their attempts to understand their relationality. I look closely at these forms of disorientation as necessary anchors for exploring queer intimacy and identity. What is the relationship between queerness and selfhood, queerness and community, and queerness and relationality? How do we begin to imagine new havens for queer selfhood? I build on the ideas of Muñoz and how they function across Bender's stories to answer this question and coin the term horizonality, which understands queerness as constantly in motion, in flux, and decentered from the norms of social order.

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Student Recruitment and Advertisement for Music Department

Mr. Leonardo Bartholomew[1]
[1]*SUNY Buffalo State*

Afternoon D3, SAMC 176, April 23, 2022, 1:30 PM - 2:30 PM

Three years ago, Buffalo State Music Department experience lead the researcher to talk about it with his high school colleagues and caused to assist the high school students to fill out college application forms. This experience inspired the researcher to do this senior capstone project. The researcher was interested in finding out what the current students and faculty experiences are, and it's influence on prospective students. To investigate, a qualitative survey questions were created by the researcher. Individual interviews (n=20) were conducted by the researcher. Various experiences were shared and documented on a video as a part of the interview results. The interview results were mostly positive and common themes included a sense of belonging and community. 15 out of 20 interviews were completed and the rest of the interviews will be conducted during the last two weeks of March. There will be 14 plus in person or zoom visits to local and NYC high schools sharing a prepared video including the interviews and conducting a Q&A sessions during early April 2022. The impact of the video presentation on the particular prospective students will be surveyed during Q&A. Significance and conclusion will be shared at the presentation based on the interview results and Q&A sessions with the prospective students. PowerPoint presentation will include video and audio.

Interpretation of Love: Poetry, Music, and Visual Art

Ms. Caitlyn Faddis[1]
[1]*SUNY Buffalo State*

Afternoon D3, SAMC 176, April 23, 2022, 1:30 PM - 2:30 PM

Since the beginning of history, poets, musicians, and artists have created art in the name of love using various languages and mediums. The best type of expression about love is often created from the artists' own personal experience. These poems, music, and visual art pieces about love are interpreted by performing artists and viewers. Four musical compositions carefully chosen by the researcher will be interpreted in two performances. As a service-learning project, the performer will present for the South Buffalo Community Association and have conversations about the interpretation with the audience on March 18th . As a lecture recital capstone project, the singer will present the lecture and perform on March 20th . Both performances will be a part of the researcher's applied learning project. A musical composer, Giulio Caccini and a poet, Alessandro Guarini wrote about the idea of an undeniable and committed relationship in Amarilli, mia bella. Music for The Cat Duet was written by Wolfgang Amadeus Mozart about two lovers where the woman was enchanted as a cat and the man tries to understand her meows by adapting her cat language. Charles Ives wrote both the music and the text for An Old Flame based on the love of his life, Harmony Ives. The text shows the man's undying love for the woman into the late stages of their lives. Sure on This Shining Night was composed by Samuel Barber, and the poem was written by James Agee. Agee found inspiration for the song through the passing of his father when he was six. The song expresses the love between the living and the dead. Each song will be paired with an image of visual art piece chosen by the singer as a tool of her own interpretation. By choosing these particular art pieces from various artistic periods, the presenter expresses how love is a universal language. The lecture will consist of PowerPoint presentation of historical background of the composer, poet, poetic/musical analysis, and an interpreted connection to the particular art pieces. A video/audio recording will be included.

The Fine Line Between Understanding and Glamorizing Trauma

Marek Heitzenrater[1]
[1]*Buffalo State College*

Afternoon D3, SAMC 176, April 23, 2022, 1:30 PM - 2:30 PM

In this research paper I will be exploring the archival documentary, The Killing Of America by archivist Sheldon Renan (1981), and particularly its representation of criminal cases. As our culture shows a growing curiosity about the macabre details of true crime, with the growing popularity of true crime documentaries on platforms such as Netflix, this documentary has gained in relevance over time. I want to evaluate whether a sensational documentary of this kind (which frequently sets out to shock while simultaneously drawing attention to psychological motivations for the crimes depicted), has any broader purpose than to exploit horrible events, and to reflect on what that reveals about the growing consumption of this type of media. The Killing Of America is a very grim and unflinching look at America's most infamous crime cases pre 1980 in an effort to outline a hypothesized "decline in American values and society." Through analysis, I will show that the unethical and disrespectful methods used to produce the film are resurfacing in the contemporary docuseries, which have become a staple of true crime content. The paper will draw this through-line by analyzing the film devices in the documentary, exploring the questionable ethics behind them, and relating these to our current ethics in true crime content. My hope is that the reader will develop a greater understanding of how documentary methods used in The Killing Of America have contributed to a decline in American ethical standards for this kind of content.

"Restrepo" vs "The Battle of San Pietro" Evolution of the Combat Documentary

Scott Johnson[1]
[1]*SUNY Buffalo State*

Afternoon D3, SAMC 176, April 23, 2022, 1:30 PM - 2:30 PM

I plan to compare and contrast the filmmaking of "The Battle of San Pietro" (John Huston, 1945) and "Restrepo" (Tim Heatherington and Sebastian Junger, 2010) San Pietro focuses on a World War II battle in central Italy and Restrepo takes place in Afghanistan. The two conflicts that these films portray, the circumstances surrounding them, and the attitudes towards them could not be more different from one another. Just as the conflicts were different, so were the films. The evolution of documentary technique and the evolution of the cultures of opinion that surrounded them both play a large part in the films' representation of the events. The exploration of contributing factors in the construction of both films will be the focus of this comparison. In particular, I will examine the technology differences between the two films in light of what "Restrepo" could accomplish that "The Battle of San Pietro" could not due to those limitations. This includes the difference in technology and resources that the filmmakers had access to. "The Battle of San Pietro" was shot on heavy, 16 mm cameras by army cameramen, and "Restrepo" was shot on small digital cameras often carried by the soldiers themselves. There will also be consideration of the public's perception of the conflicts and how that reflects the way the films were received back home and the ultimate effect they may have had. This includes authenticity and the use of reenactments by John Huston in contrast to the cinema verité of "Restrepo."

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The Sound Of Nature: Text Painting In “To The Sea” By Edward MacDowell

Melanie Bebak[1]
[1]*SUNY Buffalo State*

Afternoon E3, SAMC 169, April 23, 2022, 1:30 PM - 2:30 PM

Edward Alexander MacDowell (1860-1908) was an American pianist and composer who captured scenes from nature in sound. A composer of many works, he created several sets of piano pieces based on nature. Some of his most notable collections include the Woodland Sketches, Fireside Tales, and Sea Pieces. These compositions conjure an atmosphere that paints the titles, whether in the context of one select piece or though the entire collection. One such element that is employed throughout his works, is text painting. Text painting, also referred to as word painting or tone painting, is the use of music in the form of chords, lyrics, and movement to create a literal meaning or interpretation of a title.
A great example of text painting in MacDowell’s compositions can be observed in a piece called “To the Sea," included in his collection, “Sea Pieces”. In this piece, MacDowell interprets a visual world full of rich colors and striking contrasts through sound. He takes advantage of the full range of the piano in order to create such strong imagery that one cannot help but hear the crashing of waves amidst the vast ocean. Both the serenity and the ferocity of the vastness can be recognized in different sections of the music. MacDowell utilizes motion up and down the keyboard, rich sonorities, and a broad dynamic range throughout the piece in order to develop this scene and create a world that is as vivid as it is striking.

Multimedia platforms increase involvement for the National Naval Aviation Museum Foundation

Ms. Ashley Bonura[1]
[1]*Farmingdale State College*

Afternoon E3, SAMC 169, April 23, 2022, 1:30 PM - 2:30 PM

The National Naval Aviation Museum is a military, and aerospace museum located in Pensacola, Florida. Together with Direct Effect, the Naval Aviation Museum Foundation (NAMF), created a national college student innovation challenge. The challenge was to increase involvement of younger generations to the NAMF, through marketing. They requested multimedia marketing, and required that one of those medias be direct mail. Farmingdale State College’s multidisciplinary team consisted of a computer science student, a graphic design student, and two interaction design students. They were provided general information regarding the client, and it helped provide a direction to lead their research.
Farmingdale State College’s (FSC) team interviewed a student pilot, a museum director, and 3 avid social media users to learn about potential museum goers. The student pilot reported visiting two aviation museums, after hearing about them through word of mouth, and would like to visit more within the upcoming future. The museum director noted their success when incorporating scavenger hunts in the museum to increase visitor engagement. Upon review of the research obtained from these interviews, the FSC team then started their campaign design. A three-part marketing campaign, to engage the younger generations and increase awareness of the NAMF. The direct mail piece presented a QR code that led the user to the flight simulator located on the NAMF website. Next, was the travel site advertisements that were located in bus shelters, train stations, and airports. These advertisements also presented a QR code that led the user to the flight simulator. Lastly, the social media marketing piece was an interactive kiosk that was located at the museum. The kiosk had a QR code the user could scan and it led the user to the

museum's scavenger hunt. FSC's team was able to make the user's journey possible by blending the physical and digital spaces, creating a seamless interaction. The FSC team made the National Finals in Spring of 2022.

War for Ukraine

Joshua Nielsen[1]
[1]*Buffalo State*

Afternoon E3, SAMC 169, April 23, 2022, 1:30 PM - 2:30 PM

My research project will address the 2022 crisis in Ukraine as the world is watching Russia's aggression continue to escalate. I will analyze the 2015 documentary, Winter on Fire: Ukraine's Fight for Freedom (directed by Evgeny Afineevsky) for evidence of how the 2014 Euromaiden civil uprising could have led to today's political situation. The film documents the transformation of a peace-loving nation to one willing to sacrifice lives for their principles. How does this representation of the slow buildup of the protests match with contemporary news and historical records? Will Zelensky, a new leader leaning toward democracy in place, be able to successfully lead Ukraine in an effort to fend off Russia once again? I will also analyze the 2022 documentary, Two Men at War (produced by George Stephanopoulos) to research its presentation of both Zelenskyy and his new leadership in Ukraine and Putin, with his long-lasting grip on Russia and its government. I will examine the world's reaction to Russia's attack on Ukraine in 2022 and how it is continuing to deal with the ongoing conflict.

Can Music Alone Cause an Emotion? An Investigation into Jenefer Robinson's Deeper Than Reason.

Mr. Nicholas Stanford[1]
[1]*SUNY Buffalo State College*

Afternoon E3, SAMC 169, April 23, 2022, 1:30 PM - 2:30 PM

In my research, I investigate the extent to which music can cause emotions in a listener, and the necessary conditions for a musically induced emotion. Prompted by Jenefer Robinson's book, Deeper Than Reason (2005), I designed a research study that provided participants with emotionally expressive music and investigated their physical, emotional, and cognitive reactions to this music. Results of the study showed an emotionally related evaluative cognitive event was necessary to having an emotion with music. Without this kind of cognition, I found that participants were likely to experience what Robinson defines as mood states, supporting the conclusion that music alone cannot cause an emotion. To conclude, I emphasize the importance of further research into both musically induced emotions and the role cognition plays in human emotion. This research was conducted in correlation with my undergraduate Honors Philosophy Thesis project, which I successfully defended during the Fall 2021 semester. An edited version of this paper is submitted for publication in an undergraduate academic journal, and it is my intention to further research the interplay of music and emotions in future graduate work.

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The effect of internet speeds on high school graduation rates in American counties

Sarah Chapman[1]
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Afternoon A4, SAMC 151, April 23, 2022, 2:45 PM - 3:45 PM

What impact does internet speed have on graduation rates? Many things can impact high school graduation rates, and internet speed is one of those things, especially in a world impacted by the pandemic. This paper looks at the impact of internet speeds on graduation rates in the U.S. This is because according to research into past studies, internet speeds had noticeable effects on graduation rates at single school levels. The county level was chosen to study in order to get a consistent unit of measurement while still having a large number of data entries. Looking at roughly 1900 counties across the U.S., the data showed that both upload and download speeds had significant effects on graduation rates. I also consider the effects of additional determinants of high school graduation rates, including population size, gross domestic product (GDP), average housing costs and political alignment. Additionally, internet speeds both pre and post pandemic were taken into account. The goal of this study is to analyze how much of an effect internet speeds have on education, in order to work towards formulating a plan to improve education based on the data.

An Examination into Naked Shorts, Cellarboxing, and GameStop

Okay Michael Halsted[1]
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Afternoon A4, SAMC 151, April 23, 2022, 2:45 PM - 3:45 PM

An Examination into Naked Shorts, Cellarboxing, and GameStop looks to explain these three concepts and provide a way to identify them in today's stock market. Naked Short-Selling, outlawed by the SEC after the '08 recession, is a way for market actors to gain short exposure without selling real shares like conventional short-selling. The main byproduct of this are counterfeit shares, leading to dilution of the float, and eventual price decreases. One or a couple coordinated actors could, in theory, naked short a company into bankruptcy while at the same time taking on massive leverage in excess of the target company's entire amount of issued shares. Cellarboxing occurs during bankruptcy, and there is little research into this topic yet. Bankrupt stocks still trade, generally at the minimum price value of $0.0001. A dominant market-maker can then naked short to fill any buy orders coming in. Previous research shows that as minimum price movement values reach uniformity, market-makers tend to make markets for cheaper and cheaper stocks. This is because with uniform price movements the margins on a $100 stock are the same as those on a $1.00 stock, so they take the cheaper and less risky option. GameStop is a company that the SEC reported had short positions in excess of its float, suggesting weaponized naked shorting. The SEC also confirmed that during the biggest price run-up in January 2021, that the short positions did not close and still existed after the run-up. With these pieces, this project analyzes data from hundreds of bankrupt (cellarboxed) companies and compares them to GameStop during the time period following the January run-up. If similarities exist, it is highly probable that GameStop was in the process of being cellarboxed and was shorted with the same methods, asset baskets, and time periods as these bankrupt companies. Lastly, this project aims to offer possible outcomes. The most likely one being a short-squeeze where shorts turn into desperate bidders for shares during a violent run-up in price. With the amount of shares available being less than the amount of shares shorted, this will be a major financial event in the near future.

Thomas-Fermi Model In Investigation of Deca-Quarks

Mr Jacob Mongold[1]
[1]*Niagara County Community College*

Afternoon A4, SAMC 151, April 23, 2022, 2:45 PM - 3:45 PM

Thomas Fermi Model to Investigate the Existence of Deca-Quarks
The Thomas Fermi statistical quark model has been used previously by our group to investigate the family stability of mesonic particles. In doing so, our group has observed strong indications of the existence of octa and hexadeca quarks. In this research, we analyze the systematic energy trends of the family stability of pentaquarks and investigate the possibility of existence of deca and icosa-quarks.

An Econometric Analysis of the Impact of Machismo on Female Labor Force Participation

Hunter Roy[1]
[1]*SUNY Geneseo*

Afternoon A4, SAMC 151, April 23, 2022, 2:45 PM - 3:45 PM

Machismo, the societal standard of overwhelming masculinity, holds a grip on the region of Latin America and has had lasting impacts on women's roles in the public sphere. This literature review and estimated regression model seek to explain the relationship between several economic and social factors and Female Labor Force Participation rates (FLFPR) in the region of Latin America. The literature review is divided into three sections: a focus on machismo origins, the role of machismo on FLFPR, and the general relationship between gender roles and economic growth. Built off of previous research, the model uses econometric analysis to provide an estimated regression function which helps to explain the impacts of different factors on FLFPR. The model incorporates factors such as the proportion of women in parliament, the Women's Business and Law Index, adolescent fertility rates, percentage of females with a bachelor's degree, and GDP growth rates in order to determine the relationship between societal standards and FLFPR. The results show that GDP growth and female educational attainment are statistically significant and positively related to FLFPR and female government participation is statistically significant and negatively related to FLFPR. Finally, several policy suggestions are made with regard to increasing FLFPR in the region, mostly pertaining to increasing female education levels as well as methods to increase economic growth.

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Spanish Language Development and Perceptions of Undergraduate Students During Short-term Study Abroad

Marissa Baugh[1]
[1]*SUNY Cortland*

Afternoon B4, SAMC 170, April 23, 2022, 2:45 PM - 3:45 PM

The purpose of this evaluative case study is to determine how students from a 4-year medium-sized college in the northeast US who participate in a short-term study abroad program in Cuernavaca, Mexico perceive their experience as worthwhile in their education. This research seeks to answer the following questions: 1) How does short-term study abroad impact students' perceived level of Spanish language proficiency?; 2) What are students' thoughts about short-term study abroad with respect to their learning beyond their Spanish language development (e.g., financial investment, cultural appreciation, etc.)?; and 3) What are students' overall perceptions of the short-term study abroad program?
The subject of shorter-term study abroad (i.e., four weeks or less) programs is increasing in popularity. However, aside from a couple of studies about this subject, there is a lack of research about students' perceptions about their shorter-term study abroad experience. This research seeks to create a better understanding of a shorter-term study abroad program in Cuernavaca, Mexico with respect to students' perceptions of the overall experience and their Spanish language development.
The participants in this evaluative case study are students or alumni of a four-year medium-sized college in the northeast US who participated in a short-term study abroad program to Cuernavaca, Mexico. Participants gave consent to partake in this study and completed a demographic survey. Each participant was interviewed to hear their perceptions about the program. The demographic survey was analyzed using descriptive statistics. Semi-structured interviews were first analyzed using descriptive coding then thematic analysis for second-cycle coding. Main themes derived from second-cycle coding include motivations of participants, supporting participants during study abroad, and critiques of the program. Each of these themes will be broken down into subthemes that relate to language gains, confidence, anxiety, and length of study abroad in the presentation.

Impact of Virtual Delivery on Retention in a Breastfeeding Promotion Intervention among Ex-smokers

Nhi Nguyen[1], Gary Shum[1], Faustine Viri[1], Jaidyn Wolfe[1], **Mr. Jae Gardella**[1]
[1]*SUNY at Buffalo*

Afternoon B4, SAMC 170, April 23, 2022, 2:45 PM - 3:45 PM

The emergence of COVID-19 increased the need for remote interventions in human clinical trials. This change naturally brought about certain challenges, but also resulted in a notable increase in participant retention rates. While there were initial concerns that the loss of face-to-face interactions would have a negative effect on patient participation, our University of Buffalo Infant Care and Breastfeeding Promotion Study (N=139) data collected both before (N=81) and during (N=58) the pandemic demonstrates a few key trends. For one thing, a statistically significant difference in rates of attendance between the virtual group and the in-person group wasn't observed until the participant's second intervention (86.0% vs 64.2%; relative risk, 1.34 [95% confidence interval, 1.10-1.63]), suggesting that there is some portion of the population who may find participation in clinical trials infeasible regardless of how it's conducted. However, the differences in continued participation in the virtual group compared to the in-person group were significant in all the subsequent intervention visits: 86.4% vs 55.6% (1.56, [1.25-1.94]) at the 3rd

intervention visit, 86.4% vs 50.6% (1.71, [1.35-2.17]) at the 4th intervention, 86.4% vs 51.9% (1.67, [1.32-2.10]) at the 5th intervention visit, and 86.4% vs 46.9% (1.84, [1.43-2.37]) at the 6th intervention visit. The exact causal relationship between the shift to virtual interventions and such a dramatic difference in participant behavior is still unclear, and certainly warrants further study. Figuring out why our study's participants reacted so positively to virtual interventions can help aid in replicating those results more broadly.

Conveying the Ineffable: The Communication Techniques of H.P. Lovecraft

Mr. Samuel Kaye[1]
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Afternoon B4, SAMC 170, April 23, 2022, 2:45 PM - 3:45 PM

One of the more profound limitations of language lies in the conveyance of the ineffable, namely concepts that have few analogues for comparison and that defy traditional means of explanation. After noting the ongoing issue of conveying the ineffable in several fields, particularly in philosophy and the practice of science communication, this paper examines the methods of conveying the ineffable that were employed by H.P. Lovecraft, a prominent and provocative horror author of the early 20th century who frequently wielded complex and abstract descriptions as tools to evoke sensations of existential dread. The primary texts examined are two of Lovecraft's canonical short stories, "The Call of Cthulhu" (1928) and "At the Mountains of Madness" (1936). Using Immanuel Kant and Martin Heidegger, whose works concern the accumulation and examination of knowledge through the medium of language, three categories of basic descriptive concepts in Lovecraft's texts are identified and examined: geometry, scale, and sensation. Lovecraft frequently calls attention to their limits and presents entities that exist beyond them, such as the Old Ones, beings "that lurk ceaselessly behind life in time and in space" ("The Call of Cthulhu" 216). He also uses two literary devices—italics for emphasis as well as the employment of foreign languages, both real and fictional—that allow him to imbue words with implied meaning and to suggest implications outside of the English language.

How do Characteristics of the U.S. College Students Influence their Parking Behavior?

Ms. Carol Sung[1]
[1]Farmingdale State College

Afternoon B4, SAMC 170, April 23, 2022, 2:45 PM - 3:45 PM

U.S. college students across the country face parking conflicts that cause them to become stressed and frustrated. Because of this, current research is conducted to develop assisting technology and parking systems by understanding how characteristics of U.S. college students influence their parking behavior. Prior research shows that U.S. college students' parking behavior is influenced by many distinguishable characteristics which may include age, gender, financial comfortability, as well as the tendency to procrastinate. This research first studies how the characteristics of U.S. college students influence their parking behavior then designs assisting technology based on the data collected. In Fall 2021, a small study was conducted where 24 U.S. college participants completed a survey. From the data collected, U.S. college male students are more careless in terms of where they park compared to females by a tiny percentage. However, age has a bigger impact as younger students from freshman to sophomore year are more cautious about where they park and will spend more time finding their preferred parking spot compared to older students from junior to senior year. Students who are not financially comfortable tend to be more careful

with their cars and where they park compared to financially comfortable students. Students who tend to procrastinate commuting to campus tend to be less cautious in where they park by parking in the first spot they see compared to students who are not late by spending time to find and park in their preferred spot. Younger students tend to procrastinate less than older students. From the data collected and additional studies further conducted, an app, FriendN'Go, is designed to reduce parking conflicts, financial issues in maintaining a car, poor mental health, and environmental pollution. Accessed through mobile devices, smart watches, and car touchscreen stereos, this system encourages students to adapt to an eco-friendly lifestyle through sharing rides, creating friendships, and assisting them through their commuting struggles.

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Effect of Cavity Location on a NACA0018 Airfoil

Ellise Blake[1]
[1]*SUNY at Buffalo*

Afternoon C4, SAMC 173, April 23, 2022, 2:45 PM - 3:45 PM

There are many limitations on the effectiveness of an airfoil due to its shape. Since aerodynamic performance is directly related to the pressure differential generated, an attached boundary layer is crucial to maintaining a functional airfoil. In an effort to increase effective range while simultaneously reducing drag, researchers have experimented with the introduction of a cavity on the surface of the airfoil. The cavity allows for trapping of vortices in a manner designed to impede the growth of the boundary layer and thereby delay separation of flow. This study compares cavity location as a function of chord length, to the impact on lift-to-drag ratio as well as the increase of stall angle. The two-dimensional flow is measured using particle image velocimetry (PIV) over two modified NACA0018 airfoils then analyzed to determine the overall effect of location. The two models are designed to resemble previously tested airfoils: an easily manufacturable cavity in the front, and a theoretically optimized version towards the rear. The results from the experiment are supported qualitatively with additional dye-visualization over each airfoil.

Vortex Ring Behavior from Varying Orifice Geometry

Christina Colella[1]
[1]*University at Buffalo*

Afternoon C4, SAMC 173, April 23, 2022, 2:45 PM - 3:45 PM

A hydraulic piston/cylinder arrangement was used to generate vortex rings whose behavior was qualitatively observed using a dye-flow visualization technique. The piston/cylinder system was actuated outside of a standing water tank, and the force was transmitted through a hydraulic line to a submerged cylinder in a quiescent flow. The end of the cylinder was fitted with an orifice of varying geometry to create rings of different shapes. A circular, rectangular and cross-shape orifice were all used to study the effects of geometry on the formation and evolution of the vortex rings. A neutrally buoyant dye mixture was injected just behind the orifice near sites of vorticity generation. The dye was entrained into the vortex ring providing a high-contrast marker to visualize the ring behavior. The ring motion was recorded simultaneously by two DSLR cameras oriented orthogonally to better illustrate the 3D propagation of the rings. Previous studies have shown vortex rings created with square orifices bifurcate at an aspect ratio of approximately 4. This limit is tested for cross-shaped orifices by asymmetrically varying the legs of the cross until the segments approach this critical value.

The Impact of Starship on the Satellite Manufacturing Market

Mr. Gleb Dementev[1]
[1]*Jamestown Community College*

Afternoon C4, SAMC 173, April 23, 2022, 2:45 PM - 3:45 PM

The launch price of the current generation of satellites has a significant impact on the market of satellite manufacturing. SpaceX is developing a fully and rapidly reusable launch system called Starship that can reduce the price per pound to orbit at least by an order of magnitude within 2-6 years and substantially increase launch capacity, i.e. amount of mass delivered to orbit. This study aims to determine how the

potential drop in launch prices would influence the satellite manufacturing market; specifically, the demand for new satellites by satellite operators.
The hypothesis is that the increased launch capacity would be saturated primarily by an increase in mass to utility ratio, assuming long-term market rationality. To test it, a historical analysis of satellite demand elasticity is conducted and the findings are extrapolated forward for different scenarios involving Starship. Additionally, projections in manufacturing cost savings by mass increases are made and evaluated. Finally, a macroeconomic analysis is performed to estimate the effect of the reduced launch price and increased capacity on satellite operators' profits under various approaches. A maximum is identified, which is then used to assess the expected changes in demand.
This analysis can assist industry players in hedging against the fundamental structural risk posed by Starship, as well as identify potential market niches for new contenders to occupy.

Performance of Porous Graphene Superlattice for Thermoelectric Cooling and Refrigeration

Mr. David Drysdale[1]
[1]SUNY Poly

Afternoon C4, SAMC 173, April 23, 2022, 2:45 PM - 3:45 PM

Shuang Tang, Andy Juan, David Drysdale, Joseph Duarte Menjivar, Jason Guzman

The heat management of novel electronic and photonics systems based on nano-materials has been a long-time challenge. Besides the traditional passive heat conduction systems, the active cooling and refrigeration has been attracting intensive research focus. Here we propose that the porous graphene superlattice can be a prototype materials system to study how the active cooling/refrigeration rate will change with various materials parameters. Periodic pores can be made on graphene samples using electronic beam lithography. The size, iteroparous distance, shape and periodicity of the pores can be artificially designed. We have studied how these parameters will affect the electrical conductivity, thermopower, as well as the ultimate active rates of cooling and refrigeration, when the Fermi level is tuned using a gate voltage.

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High on the Hog: How African American Food Transformed America (Netflix, 2021).

Ms. Maggie Benjamin[1]
[1]*Buffalo State*

Afternoon D4, SAMC 176, April 23, 2022, 2:45 PM - 3:45 PM

The host of the Netflix documentary High on the Hog, Stephen Satterfield, tells the story of African American foodways to North America. This is important to us all because a lot of the foods that were brought to North America are foods that people of all ethnicities consume each day without knowledge of their origination. Satterfield explores the ways at which African American food has been integrated into many cultures. Therefore, African American food is very important in African American culture and every other culture alike. It is what unites us with our ancestors, people of the present time, and all the future babies to come. For this reason, Satterfield goes into depth about how African American food benefits us all. He explored foodways to North American in a way that brought us on a journey with him. A journey through his own experiences, as well as the experiences of the people he acquainted himself with to gain more knowledge about the history of our food. Aside from watching High on the Hog, I have also analyzed three articles related to its contents, and two critic reviews. While conducting this research, I learned more about which foods originated from African American foodways, and how they've made it as far as they did.

Viewing Our Food Up Close in Food Inc. & Super-Size Me

Muse Muse[1]
[1]*Buffalo State College*

Afternoon D4, SAMC 176, April 23, 2022, 2:45 PM - 3:45 PM

In this research paper I want to bring to attention, the production and the reality of the food industry which is sugar coated and swept under the rug by these big companies. I want to compare and contrast two documentaries, Food Inc. (Robert Kenner, 2008) and Super-Size Me (Morgan Spurlock, 2004). Both documentaries address the corporate takeover of our food chain, and the problems with farming and production of the food we eat and the effects it can have on us. Food, Inc, uses author and Eric Schlosser as an expert narrator, and interviews titans of healthy food research such as Michael Pollan. Spurlock presents the same subject from a very personal point of view, offering himself up as the center of an unofficial experiment to "super-size" all his meals for a year to learn the results. My paper will question how these documentaries each approaches the emotional side of the story and the factual side of story. I will talk about the reception and reaction that each documentary got and discuss the impact of each documentary filmmaker's style. I believe it is really important to know what you are putting inside your body, so you can live longer, healthier lives. Even though these films were more than a decade ago they are very much still relevant today and that says a lot.

Seeking Racial Justice: 13th and True Justice

Mr. Tariq Nelson[1]
[1]*SUNY Buffalo State*

Afternoon D4, SAMC 176, April 23, 2022, 2:45 PM - 3:45 PM

In this research paper, I will analyze two documentaries that reveal how African Americans have been oppressed systematically and economically. I will discuss the relationship between “13th” (Ava du Vernay, 2016) and “True Justice: Bryan Stevenson’s Fight for Equality ” (George, Teddy, and Peter Kunhardt, 2019). Both films explore and demonstrate the inequality of the justice system towards people of color, focusing mainly on African Americans. In the paper, I will dive deeply into DuVernay’s construction of a representation of the complicated history of specific laws that promote the economic oppression visited upon African Americans, that still impact us to this day. Consideration of True Justice will provide examples of the struggle of an Alabama attorney to bring fairness into the legal system through his organization The Equal Justice Initiative. The examples in the film illustrate racial discrimination in the criminal justice system. This is a matter of importance because in order to change your future you have to understand and educate yourself on the past. Change can only happen when problems are addressed. As long as we continue to stay oblivious to the attacks against our youth and our culture the longer we will remain slaves mentally.
How can documentaries contribute to bearing witness and encouraging an evolution of thought?

Media Sensationalism of Missing Persons Cases

Teresa Serrano-Moody[1]
[1]*Cayuga Community College*

Afternoon D4, SAMC 176, April 23, 2022, 2:45 PM - 3:45 PM

This paper investigates a variety of articles, data, demographics, and trends to shed light on the relationship between numerous forms of media and missing persons cases since the milk campaign in the 1970s. This topic was inspired by the numerous Indigenous people, people of color, and males that go missing every day within the United States, and remain unseen, unheard, and forgotten. It uses data from government agencies and organizations, online articles from diverse major and local news outlets, and tracks trends on how much attention one missing persons case may attract from the media versus another. It also looks at trends related to how quickly law enforcement can share and gain information from the public, through mass media and social media platforms. This project discusses the media’s sensationalism of missing persons, their influence over how cases are managed by law enforcement, and how they are viewed by the public. The paper explores the effect media could have on whether a case is solved or forgotten. Finally, the paper dives into how the media uses race, gender, and social class when revealing or not revealing information to society. Based on the research conducted, the media uses race, gender, and social class to sensationalize a missing person case, attract viewers, and to boost their ratings, and this has impacted how cases were managed.

Automation of Fintube Testing Apparatus

Mustafa Abdelfadeel[1], John Lewis[1], Shon Culbreath[1]
[1]*Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Ingersoll Rand (IR) is a company in the business of manufacturing and selling compressors. IR has a testing apparatus for fintubes which are used in the intercoolers between stages of compression within a compressor. When IR first approached us with this project, all of the controls were manual and this was very time consuming. They expressed a desire to automate this system to make it more convenient to operate, to which we obliged and worked with them to automate their testing apparatus for fintubes to be automatic and more efficient. After visiting the test facility a few times and taking a look at the current set up, we created several proposals for automating each component being used in the testing apparatus. Afterwards, we chose the most desirable proposal for each component and created a budget along with a project timeline based on the proposals chosen. We then installed the new components within the testing apparatus and created custom logic in Labview to automate the testing process. Utilizing our new hardware and software, we were able to automate the testing apparatus and develop a faster, more automated, and easier to use testing procedure which enabled IR to test out a wider variety of test conditions for their fintubes.

Is Mental Health a Concerning Issue Related Within Poverty?

Makena Adams[1]
[1]*Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Do people in Buffalo that are living in poverty also struggle with mental health? In the United States, people with mental illness are at risk of poverty. One reason is it can intrude on their personal relationships and their career. But also, economic issues, poverty, can be harmful to the people's mental health because poverty isn't something people want. Poverty and mental health go hand in hand because poverty is in direct correlation with higher rates of depression and other mental illnesses. Adversity within childhood is connected to poverty within their adult life because of what they have gone through. Using Photovoice, I will explore whether this is also true in Buffalo. I will research local information and community resources. I expect to find information that I haven't yet broke the surface on. I think that what was stated is like what is happening in Buffalo. I expect to find the statistics to shine light on what others don't know exist and open the eyes of people. With this project I want to bring awareness to the correlation between mental health and poverty. It isn't talked about enough because people think they understand, but they don't have all the information to be knowledgeable about the impacts mental health and poverty have on the city of Buffalo. There needs to be more attention brought to this to help the people who are struggling with this battle.

THREE-PHASE POWER TRANSFORMER CONNECTIONS TRAINER

Mr. Alan Westman[1], Mr. Robert Johnson[1], Mr. Bandan Gurung[1], Mr. Yahya Alshuabi[1]
[1]*SUNY Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Three-phase transformer connections module has been developed for training utilities line technicians in the basics of measuring voltage magnitudes and phase angles of three-phase power systems and visualize them in order to maintain proper phase sequencing for various transformer connections.
The project results in development of a device capable of measuring and displaying results for two sets of three-phase voltages. Existing meters allow displaying of only one set of three-phase voltages. The training module will be used by National Grid and other power companies to train their workers in a safe manner before they commence their job on high-voltage equipment.
Three-phase transformers can be connected in a bank using three single-phase transformers. This allows various standard connection schemes. Existing standards, such as ANSI standards and National Grid standards were investigated as well as scholarly sources describing electric measurements methods. However, the complexity of possible connections may lead to improper phase sequencing, which can lead to failure of connected devices. It is imperative to obtain appropriate phase sequencing. This is accomplished by the development of the training module and displaying information in a way easily comprehensible by line mechanics. Existing methods are available to measure and display results for only three outputs. The project develops methods and devices to measure and display six outputs, which was not done before and not available commercially.
Based on the project goals, the following approaches/methods were utilized: decomposition, functional analysis, synthesis, testing, and evaluation. Larger systems were divided into subsystems with their own objectives; individual subsystems were completed with the goal of integrating them into a larger and comprehensive system.

William Grant Still: The Dean of Black Composers

Quiana Bell
[1]*SUNY Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

William Grant Still (1895-1978) is one of the greatest Black American composers and music arrangers. Still is the first Black American to have a major symphonic work, his Symphony No. 1 (“Afro-American”), performed by a major orchestra, the Rochester Philharmonic Orchestra, in 1931. William Grant Still attended Wilberforce University in 1911 studying to become a composer of concert music and opera. Subsequently, around 1916 he enrolled into Oberlin College to study theory and counterpoint. One of his most important and influential teachers would be French conductor and composer Edgard Varèse, who encouraged him to compose with larger autonomy in expression. One of Still’s greatest and most frequently performed piano suites is Three Visions, dedicated to his wife, pianist and librettist Verna Arvey. Created in 1936, Three Visions is comprised of three movements: “Dark Horsemen," “Summerland," and “Radiant Pinnacle.” William Grant Still created a highly original conceptual work on the obscure mysteries of life and death whose interpretation presents a significant challenge to performers. The first movement, “Dark Horsemen," was intended to be perceived as the human soul coming to death and divine judgement, which made it natural for “Summerland," the second movement, to represent when the soul’s entrance into heaven. Of the three movements, “Summerland” is the most simplistic in its form, with great melodic appeal, multifaceted harmonic coloring, and profound transcendent timbre, masterfully achieved with unnecessary complexity. According to his daughter, Judith Anne, Still was very fond of this movement, as he frequently used it as a form of music therapy. Seeing that Three Visions is masterful in pianistic poetry, William Grant Still very well might have been influenced by the Romantic era composers, who are known for the use of poetic narrative in their works.

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Autotoxic Effects on Cosmopolitan Arabidopsis thaliana Ecotypes

Ms. Mimi Byrne[1]
[1]*SUNY Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Interspecific competition is a main priority plant species must undergo to successfully survive, but intraspecific competition also is a big challenge for plants. Many plants, for example Medicago sativa (Alfalfa) and Kalanchoe Daigremontiana (Devil's Backbone) deter the growth of their daughter plants that are in a close radius. This behavior is a type of allelopathy called autotoxicity. Autotoxic plants directly attack other plants by releasing phytotoxic chemicals that inhibit seed germination and seedling growth. In this paper, we will investigate autotoxicity of Arabidopsis thaliana in seed germination and seedling growth. We will look at 6 different natural ecotypes of A. thaliana (Africa, Sweden, Libya, Germany, Portugal, and Finland). To test allelopathic effect in seed germination, we will be using an agar gel method. This method measures the effect of dried leaves or extracts through an agar gel in which seeds are germinated on the top layer. If the different ecotype seeds germinate more successfully than the same ecotype seed used in the agar gel, then autotoxicity is taking place. If the same ecotype seed, that is used in the agar, grows more successfully than the different ecotype seeds than allelopathy is taking place. For the seedling growth experiment, we will be growing different ecotypes to full adults then planting seeds of each ecotype under each full-grown adult. As research is still ongoing, we expect that plants from the same population will impose greater autotoxic effects on the seeds/seedlings than those from separate populations. Contrarily, many clonal, non-native plants grow in dense monocultures, suggesting that closely related individuals who share similar allelopathic compounds will have fewer negative effects on seeds and seedlings than more distantly related congeners.

How does the refusal of political power show itself in Buffalo, NY?

Jaylee Cabrera[1]
[1]*SUNY Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

How does the refusal of political power show itself in Buffalo, NY? I selected this topic because it is an important issue that is often overlooked. I learned how much the government does not function effectively. Politics is often a game for the rich, which means that future office holders may be blind to working-class problems. In the United States, the government is more likely to strip low-income individuals of their rights than to protect them. The Ninth Amendment to the United States Constitution states that the federal government does not own the rights in the Constitution, but so does the people. In the matter of that, lack of political power can prevent generations of families from lifting themselves out of poverty. For example, any citizen should be eligible to run for office if they satisfy the age and residence conditions and individuals living in poverty do not get government assistance for and that they are eligible. I intend to use photovoice as my research method to present Buffalo's lack of government assistance and power to the people and utilize the photos to demonstrate that it is a real and continuous struggle in poor towns in Buffalo. These struggles also include housing, healthcare, education, humidity, hygiene, unemployment, and hunger. This research will have a significant influence on others because it will broaden their understanding of political concerns. Millennials have consistently maintained more liberal views on political problems and the contemporary political atmosphere than older generations.

Timing of Birth and the Expression of Genes in Serotonin Signaling

Ms. Zamira Caldwell[1]
[1]*University at Buffalo*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The timing of human birth is difficult to predict compared to other species due to evolutionary differences. While the causes of these specific differences have been identified, the data collected on gene expression in the mother and fetus hasn't been synthesized enough to be directly applied to predicting the timing of birth. This is detrimental because “preterm birth is the leading cause of infant and under 5 year old child mortality worldwide" and without a precise understanding of how gene expression changes throughout pregnancy, we cannot adequately prevent it. We examined the location and expression of the genes involved in serotonin signaling pathways using the Single Cell Gene Expression Atlas to figure out which cells express serotonin receptors, how this expression changes throughout pregnancy, and how it differs in humans compared to other mammals with placentas. Understanding where these genes are expressed, in the mother’s cells or placental cells, and what their role is during normal pregnancies and those with complications will make it possible to decrease the rates of preterm births and develop ways to treat conditions that lead to increased risk of preterm births.

The Deprivation Diagnosis

Nyla Chappell[1]
[1]*Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

What does poverty and mental health look like in Buffalo? Across the country, people living in poverty often also struggle with mental health issues. This is due to their living situation as it brings on another level of stress figuring out even the simplest daily task on top of other stress factors. Tasks including, figuring out the next meal or even how to get diapers for their children can cause stress and trigger mental health symptoms. Mental health care needs to be more accessible, particularly to communities with high rates of poverty, for this reason. I’ve touched on the fact that people need to be more aware that the people living in poverty are more likely to deal with real mental health issues due to their situation. I’m going to use photovoice to see if mental health and poverty are linked here in Buffalo. Photovoice is a research method in which photos are used to visually show a concern or bring awareness to a topic. I’ve taken multiple photos to use in my research to show my analysis on this topic. From those I choose 3 pictures to show locally that mental health and poverty do tie in with each other. My research has shown that more awareness needs to be brought to this issue in Buffalo and general. On my poster I’ve shown ways and named resources to help everyone get involved.

Determining the Role of Leukotriene Signaling in Irritable Bowel Disease

Sarah Comer[1,2], Dr. Maulasri Bhatta[2], Sharon Senchanthisai[2], Dr. Shyamananda Mayengbam[2], Dr. Prasenjit Dey[2]
[1]*University at Buffalo,* [2]*Roswell Park Comprehensive Cancer Center*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Leukotrienes are proinflammatory eicosanoids that are known to modulate several inflammatory disorders, including irritable bowel disease (IBD). However, the exact mechanisms of how leukotrienes regulate

immune cells in IBD are not well understood. Furthermore, anti-inflammatory drugs targeting leukotrienes have been very effective in the treatment of asthma, therefore, leukotriene signaling may serve as a target for IBD therapy. Our approach evaluated a chemically-induced model of colitis, a subset of IBD, in genetically modified mice that did not have the ability to synthesize leukotrienes, via a mutation in the gene for the rate-limiting enzyme in leukotriene synthesis, arachidonate lipoxygenase-5 (Alox-5). We hypothesized that the absence of leukotriene signaling would reduce the severity of colitis in mice. Surprisingly, we found that leukotriene-deficient mice experienced more severe colitis. Flow cytometric analysis revealed higher levels of the pro-inflammatory cytokine, IFN-γ, in colon-derived immune cells of leukotriene-deficient mice. We have attempted to determine the cell type responsible for this result, as the change in IFN-γ appeared in a lymphoid cell population that was not one of the significant T-cell subsets. However, performing flow cytometry with markers for other T-cell variants did not support that any of the variants we tested contributed to the exacerbation of colitis. Additionally, we performed bulk RNA sequencing on colon-derived immune cells and found an increased number of transcripts involved in macrophage metabolism, like arginase-1, in the absence of leukotrienes. Therefore, further testing is required to identify the cell population responsible for the colitis phenotype in the absence of leukotrienes and our most recent data suggests that macrophage activity may play a central role in this response.

Beech bark disease severity increases overtime in northern hardwood forests

Ms. Erin Cornell[1]
[1]SUNY ESF

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Beech bark disease (BBD) has infected most American beech populations in the northeastern USA. Many of these populations are in the "aftermath stage," characterized by dense thickets of beech trees that sprout from the root systems. These beech thickets interfere with the regeneration of other important species like sugar maple. Further, BBD decreases nut production in larger trees and affects mammal populations whose diet includes beech nuts. We resampled BBD severity in a northern hardwood chronosequence to ask two major questions: Did beech bark disease severity, indicated by scale insect wax secretions, Neonectria cankers, and canopy loss, increase from 2012 to 2021? Does the age of the stand affect the severity of beech bark disease? We found both the scale insect wax and the Neonectria fungus increase as the stands mature and have increased in all the stands since 2012. Canopy loss was similar across stand age and sampling period. BBD symptoms increase over time, but the health of tree canopies does not decline in northern hardwood forests. By monitoring BBD progression, scientists and foresters can better understand the severity of the disease in forests and how it may influence other aspects of the ecosystem. Further, foresters and landowners manage BBD-infested forests, which makes understanding the disease's progression in the aftermath stage crucial to developing management plans.

The Mental Effect of Pessimism

Michael Coronado[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The power to imagine a future is essential for creating it. Pessimism is a negative mental attitude in which a pessimist tends to focus on the negatives of life and anticipate an undesirable outcome from a situation. Pessimism, while not recognized as a diagnostic category in the DMS5, may well be sabotaging our hope for

the future. Depression often has a focus on past events, but pessimism is more like what trauma victims experience impacting their ability to form goals for the future. Since trauma and pessimism both affect how people see the future, they should have similar impacts on the brain and how people think and feel. After prior IRB approval, this research will compare the brains scans of people who have experienced trauma to the brains scans of people who are long-term pessimists, utilizing fMRI technology. Participants would be shown various stimuli and ask to respond during the brain scan procedure. Responses will be recorded and the changes in brain activity shown by the fMRIs will be compared. The findings of this research has the potential to suggest that pessimism is related to trauma and that pessimists could benefit from the same treatment as trauma victims.

Immigrants in Catalonia: Effects of Language Policy on Home Language Usage

Emma Correia[1]
[1]University at Buffalo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Catalonia is an autonomous region in northeastern Spain with its own heritage and language. It has experienced several immigration booms including in the early 1900s, the mid 1900s, and the first decade of the 2000s. The first two waves were largely Spanish immigrants moving internally within the country whereas the latest wave of immigrants largely originate from Northern Africa, Pakistan, China, and South America. Many immigrants arrive to the region expecting Spanish to be the majority language, but Catalan holds this title, which can lead to dissonance and frustration. This sentiment of frustration is exacerbated by immigrants perceiving Catalan as useless outside of the region, regardless of it being the prestige language within. Meanwhile they view Spanish as an advantageous and internationally recognized language, but one that they are discouraged from using during their everyday lives in Catalonia. Since the 1983 Linguistic Normalization Act, Catalonian students are mandated to study Catalan, Spanish, and are highly encouraged to study another foreign language, usually English. Foreign students' home languages are entirely unaddressed as Catalan is the priority. The lack of home language usage within school and socially leads to a degradation of abilities in that language. We will examine only immigrants from non-Spanish Speaking countries due to the linguistic asymmetry of Spanish speaking immigrants having the option to communicate in their native language. This poster seeks to understand the effects of current language policies and what is being lost as immigrants abandon their home languages. Factors include: feelings of disconnect with one's culture, loss of familial connections, imbalance of familial hierarchy, and loss of social/economic capital. Catalonia allows for a unique look at this linguistic situation given their appreciation for their own minority language, the extensive policies created to protect it, and the expectation of bilingualism within the region.

Attributions of Responsibility for COVID Related Illness

Nicole Cronin[1], Sabrina Suriani[1], Caitlan Dean[1], Gabby Carris[1]
[1]SUNY Fredonia

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The COVID virus has impacted our lives in various ways. The purpose of this study was to investigate how prior knowledge, the severity of the illness, and vaccination status change the attributions of others. For example, previous research has demonstrated that people who transmit the virus are held responsible for their behavior (Yao, E., & Siegel, J. T., 2021). Another study found that individuals were experiencing more

feelings of anxiety and anger as a result of the pandemic (Wang et al., 2020). In our study, we created a scenario where two students got together for lunch. The first student was either aware or not aware that they had previously been exposed to the virus. The second student was either an anti-vaxxer or pro-vaxxer. The second student subsequently experienced severe or mild COVID-related symptoms. We then asked our research participants to answer questions related to guilt, anger, responsibility, forgiveness, sympathy, and carelessness. We predicted that a person with prior knowledge of their exposure would be held more responsible, should feel more guilty, would be perceived as more careless, would be perceived in a more negative manner, and would be seen as needing to apologize for their behavior. We also predicted that the anti-vaxxer would be perceived as more responsible and receive less sympathy. We anticipated that severity of illness would interact with the two other variables on measures of guilt, sympathy, assumed anger, and assignment of responsibility. Results will be shared at the conference.

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Evaluating Leadership Development Programming: The impact of COVID-19

Matthew DeSimone[1]
[1]SUNY Geneseo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This study examined undergraduate students' perceptions of the Geneseo Opportunities for Leadership Development (GOLD) workshops at SUNY Geneseo before and after the COVID-19 Pandemic. Specifically, this project examined which items in the GOLD Evaluation (GE; a = .727; 7-items) significantly predicted variance in students' overall experience scores. Data were collected from undergraduate students (N = 559) using an online post-workshop survey.
Before COVID-19, all bivariate correlations between the GE composite score and GE items were statistically significant ($p < .01$) ranging from weak ($r = .225$) to strong ($r = .693$) associations with students' overall experience score. After COVID-19, all bivariate correlations between the composite score and GE items remained statistically significant ($p < .01$) ranging from weak ($r = .179$) to strong ($r = .757$) associations with students' overall experience scores. These analyses identified differential associations at both the composite score and item level in the GE before and after COVID-19. Following these findings, two univariate regressions were calculated which revealed differences in the variance explained by the GE composite score on the students' overall experience scores before, Adjusted $R2=.412$, $F(1, 68)=49.344$, $p<.001$, and after COVID-19, Adjusted $R2=.443$, $F(1, 251)=204.381$, $p<.001$). To more thoroughly understand the variance explained by the GE composite score, hierarchical multiple regression models employing GE items were calculated. The models revealed the unique and differential effects of the GE items on students' overall experience scores with the program. The findings offer insights into the optimal conditions needed for professional development programming in the post-COVID world.

Going for the Gold: the 1980 Olympic Hockey Teams

Mr. Evan DiPasquale[1]
[1]Buffalo State

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

In this research paper I will consider differing national approaches to winning in sports by comparing the documentary Red Army by Gabe Polsky, and Do You Believe in Miracles: The Story of the 1980 U.S. Hockey

Team. There are two distinct sides of the story told, the American and the Soviet version of the pivotal rivalry in these films. In the United States, the game was very publicly lauded as the Miracle on Ice in the 1980 Olympics, engendering national pride, but Russian historization of the event has not been as well known. These documentaries have different approaches to showing what went on for each country during the time leading up to the Winter Games. Winning was a national priority that put enormous pressure on players in the Soviet Union. Soviet players were also soldiers in the Red Army living under threat of being sent to Siberia if they did not perform up to expectations for the State. This extreme emphasis on winning in sports was a means to prove to the world the superiority of the Soviet system. Were there similar pressures for the American players? The question to be examined is what underlies the need to win in American sports, and how does it contrast with the Soviet approach?

Experimental Validation of Finite Element Analysis (FEA)

Dang Duong[1]
[1]SUNY at Buffalo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Finite element analysis (FEA) is an efficacious tool for simulating the behavior of the materials under various conditions, which can notably reduce the time and cost spent on product development. Yet the accuracy of the analysis is often limited by the approximation of the modeled components in the simulation environment. Therefore, experimental validation is an important step to determine the correctness of the FEA. In the experiment, tested samples were fabricated from 6061-T6 aluminum. Tension tests accompanied with strain gauge and electronics were then conducted to find out the practical mechanical properties of the material such as yield strength, tensile strength, stress at fracture, elastic modulus, tangent modulus, as well as strain hardening characteristics. These values are useful for FEA, particularly for taking advantage of the bilinear model to imitate the plastic behavior. Parts with different dimensions were also involved in the investigation so as to see how the force varied with samples' size in the same material. The goal of the experiment is to provide a meaningful comparison between the experimental and simulated results generated by SOLIDWORKS, especially in two areas: yielding and fracture. The results are intended to be used as a case study for computer-aided engineering (CAE) education.

Jim Crow's New Disguise: The Power of Politics on Poverty in Buffalo

Olivia Evans[1]
[1]Buffalo State College

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Does poverty effect marginalized groups from having proper access to our voting process in Buffalo? In our democracy every vote should count and presently every voice is not being treated with the weight that it should be. People in poverty are restricted by barriers that limit their ability to have the opportunity to exercise their rights. This is not only a violation of their liberties it also has a very prominent effect on the policies that are incorporated into our communities. The devastating divide between average struggling voters and wealthy incumbents creates a cyclical system where minorities' voices and opportunities are continuously silenced and their ability to receive aid is directly affected. These politicians may not have the proper insight into the everyday impoverished household to be able to truly understand their struggles. This leads to lazy policies being implemented that may have good intentions but are not fully benefiting those in need. Without their right to vote and the barriers that limit their ability to vote, impoverished citizens are continuously looked past. While using PhotoVoice, I will capture the essence of this process through the use of photographs to emphasize these barriers in Buffalo. These photos embody the struggles that come from

the consequences of not protecting every Americans liberty to vote and direct connection to the barriers within our own community. Overall, the aim of the project is to emphasize the divide between policy makers and policy users because of the inadequate access to voting for people in poverty. If the people in our communities are unable to vote, subsequently their opinions are not being heard and their view on situations that directly impact them are overlooked. I hope that my project can raise awareness of the disconnect in politics and how we as a community can combat it.

Learning Cybersecurity through Gamification and eye tracking

Brandon Ferrotta[1]
[1]SUNY Canton

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This paper will go in and investigate any correlations between how middle- and high-school students in grades 6-12 will play a simulated social media site while we use a webcam to track their eye gaze as they play. We are determined to learn how we can relate this to Cybersecurity. While the students play the game, they will be choosing posts about various topics while also choosing the post visibility. The more public the visibility, the more of a chance for their account to get "hacked." As the game goes on the player will also get emails regarding their posts which they can endorse or decline. Those emails may or may not be "malicious," and can end up with the user getting hacked. If their account is ever hacked, they will be prompted to set a new password and will allow them to begin posting again. The game works on a point system that gives a player points based on what they post. The player can lose those points if they get hacked, the goal is to try and have the most points at the end of the game. We are looking for any correlations between what is going on in the game, and where they are looking and paying attention while playing the game.
Presented by Anishka Mendez, Student, SUNY Canton

Housing in Buffalo

Haley George[1]
[1]SUNY Buffalo State

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

How does facing poverty effect housing in Buffalo, NY? Across the country, people who are struggling with poverty are dealing with many issues, including housing. We see this in Buffalo, many families and individuals who face poverty struggle with renting or purchasing a house. This can lead to many people becoming homeless, so I wanted to take a deeper look on how we can help individuals find solutions, so they do not have to become homeless. I wanted to look into the challenges people face on a daily basis and what services that can help them, so they don't have to lose their homes. People could be facing health issues, a loss of a job which can lead to them not being able to afford housing. Finding a solution like getting people set up a for good job or finding affordable treatment could help the problem we face with poverty and housing. Many people who are facing poverty, have run down homes and I wanted to look into solutions on how we could fix or help. For this research, I am using photovoice to collect data and information about the housing problem here in Buffalo. I went out into the community and captured many pictures that illustrate my theme of the housing problem. You will see the issue on housing in Buffalo and learn about different ways we can build up the city and make sure the community feels safe and I am hoping it will engage people into getting involved and helping to promote change in the housing issue in Buffalo.

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Broken Buffalo: How Poverty Affects Mental Health in the Community

Connor Greczyn[1]
[1]*SUNY Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

My research will explore the link between poverty and mental health, an area of sociology commonly overlooked by researchers and scholars alike. About 11% of males working full-time in first-world countries were diagnosed with common mental health problems in 2016, whereas 33% of economically inactive males in the same demographic were diagnosed with the same issues. Studies have also shown that individuals on a housing benefit are more than twice as likely to have common mental health problems. I plan to use Photovoice to exhibit how this gap affects the people in my community in Buffalo, New York. My preliminary research has shown me that Buffalo suffers from a surprisingly high poverty rate of 30.1% versus the national average of 12.3%. Couple this with above-average rates in major depression episodes, alcoholism and substance abuse, and you could start to see a correlation. I want to demonstrate that there is a correlation-I expect to find that the fear of starving or missing rent causes enough stress to trigger mental health issues within impoverished communities. I hope that this project will raise awareness of our own personal stigmas towards homeless people, and make people realize that most of the time, it isn't one individual's fault that they are homeless or living in poverty to begin with.

How Poverty affects housing in Buffalo

Emily Grinnell[1]
[1]*Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The problem that I am trying to address in my research is what does poverty and housing look like in Buffalo. Throughout the nation, safe and affordable housing is difficult to find. This is due to the high cost of living and low wages. Conditions like weather can also affect how a person in poverty may live. I am going to use photovoice to see if the issues of low wages, the high cost of living, and the weather are housing issues here in Buffalo. Photovoice is a research method that uses photos to capture issues of concern in a specific area to then be used to bring about change. I went out into the Buffalo area and took an array of photos that I thought best exemplified the issues of housing in the area. The final results that I found is that the photos I used on my poster make connections to what is happening here in Buffalo, are also occurring nationally. Looking at the statistics and the photos used, housing is a problem in Buffalo. My conclusion is that the Buffalo area does need to change some things in regard to housing. On my poster, I have provided resources that are helpful for people who want to make a change in their community. Overall I hope that the project can help raise awareness for poverty and housing issues and will make people want to make a difference.

The King of Kong Fist Full of Quarters & Free to Play: The Rise of E-Sports and It's Superstars

Ryan Guzman[1]
[1]*SUNY Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

I will compare the film The King of Kong: Fist Full of Quarters directed by Seth Gordon (2008) to Free to Play by Valve (2014). Both documentaries are centered on representations of competitors in the gaming world. The earlier film looks at a champion of Donkey Kong, challenged by a newcomer to the popular 1980s arcade game, while the latter centers on several professional Dota players in the E-sports community. The economics of pursuing a professional E-sports career creates complex challenges, as the commercialization of gaming has ballooned. With this research project, I will show the evolution of competition in gaming from the early days of video games to contemporary trends in E-sports, and how these are depicted in the documentary medium. The two films use unique stylistic approaches to capture the gaming community in different time periods. They also reflect changes in the games themselves, from simplistic visual designs to graphic masterpieces created from contemporary visualization tools. Finally, my research will assess how the two films chronicle our adoption of virtual athletes as heroic role models, replacing traditional sports heroes.

How Might ESG Transform the Global Market?

Jocelyn Haines[1], Christian Chin[1]
[1]SUNY College at Geneseo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Environmental, Social, and Corporate Governance (ESG) is an increasingly popular method used by investors to screen for potential investments that align with their personal values. Its primary purpose is to implement a common set of standards to measure the impact of business investments from an environmental, societal, and moral basis in addition to mitigating risk. An increase in international demands for rapid action to combat the effects of climate change has prompted the United Nations 2021 Climate Change Conference (COP26) to call for billions of dollars to be spent on climate finance as 130 countries have pledged to attain carbon neutrality by 2050.

Setting up our research through a global lens, we chose to analyze the ESG markets of the United States, China, Germany, Brazil, Australia and Nigeria because they have the highest gross domestic product (GDP), or economic strength, of their respective continents and are most likely to have accurate reporting. Recent studies have shown that sustainable investing outperforms traditional investing in the long-run, taking into account unexpected events such as the COVID-19 pandemic. While every country does not have mandatory ESG reporting, the majority of large corporations publish voluntary reports of their practices in conjunction with broader marketplace trends. This leads us to believe that implementing ESG on a global scale, keeping in mind regional differences, will ultimately lead to more sustainable economies and increase their long-term GDP, thereby improving the livelihoods of their citizens.

Catalytic Alcohol/Quinone Transfer Dehydrogenation by [IrCp*Cl2]2

Mr. Ian Hanley[1], Mr. Joshua Bunce[1], Ms. Saomi Gendville[1]
[1]SUNY New Paltz

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Iridium complexes have proven useful in alcohol dehydrogenations. However, complicated ligands are often used, the complexes may be very sensitive to oxygen, and an excess of base is commonly needed. Pentamethylcyclopentadienyl iridium dichloride dimer ([IrCl2Cp*]2), a simple commercially available iridium complex, has been found to catalytically dehydrogenate benzyl alcohol to benzaldehyde, with the help of benzoquinones as catalytic hydrogen acceptors. This reaction can be done with off the bench solvents under aerobic conditions. A range of quinones and bases were tested, yielding up to 91% benzaldehyde. In a later

step, Ceria (CeO_2) nanoparticles can be introduced into the reaction and act as electron transfer mediators. This facilitates the reaction of hydrogen with oxygen for an overall oxidative dehydrogenation pathway, allowing for catalytic amounts of benzoquinone to be used. Results will be discussed.

Monitoring Oxidative Stress in the Presence of Taxol and Etoposide Chemotherapy Drugs in A549 Cells

Ms. Aya Holcomb[1], Dr. Susan Flynn[1]
[1]*Binghamton University*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Lung cancer is the leading cause of cancer related deaths in the United States. This makes it crucial to understand the mechanism in which cancer develops in order to stop its progression. Oxidative stress is the imbalance of reactive oxygen species (ROS) to antioxidants and has been found to support the development of many cancers, and is often an indicator of cancer. Oxidative stress has also been found to inhibit cancer progression by triggering apoptosis in cancerous cells. This experiment will monitor the impact of chemotherapy treatment on cellular viability and oxidative stress within a modified mammalian system. The modified mammalian system has knockout Bcl-2 family Bak and Bax pro-apoptotic proteins. These results will give insight into how the mitochondrial apoptosis Bcl-2 pathway proteins impact oxidative stress and cell viability in cancerous cells.

The Queen of the Night: Villainess or Mother Scorned?

Jada Jeremiah
[1]*SUNY Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

During the final year of his life, 1791, Wolfgang Amadeus Mozart composed what would become one of the most renowned operas, Die Zauberflöte [The Magic Flute] at the request of his librettist, theatrical director, actor, and friend, Emanuel Schikaneder. At the time, both Mozart and Schikaneder were nearly destitute, and they viewed this Singspiel - a form of German light opera, typically with spoken dialogue, popular especially in the late 18th century-as a money-making venture. With its use of Italian theatrical practices, and many references to Freemasonry, as well as its connections to traditional European musical forms and aesthetics, The Magic Flute immediately found broad appeal among the Viennese audiences of its time. Another overarching theme that was meant to garner the interest of audiences seeking spiritual uplift in addition to pure entertainment was the frequent allusion to Enlightenment beliefs. Characters such as Sarastro and his priests embody the light: by contrast the Queen of the Night and her ladies are adorned in black, representing the antithesis of these principles. This is especially evident during her “Vengeance” aria, Der Hölle Rache Kocht [Hell’s Vengeance Boils In My Heart].This aria, with its death-defying pitch range and tessitura, is a steep challenge for many sopranos to date, In my analysis of Die Zauberflöte, I hope to uncover the true nature of the iconic Queen of the Night and answer the question: Is she as evil as she seems?

Genetic Variation and the Differential Susceptibility of Human Populations to SARS-CoV-2

Ariella Khalili[1], Isaac Newman[1], Mirka Marga[1]
[1]*SUNY Binghamton University*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

As the COVID-19 pandemic continues, it is imperative to understand the factors that may contribute to its transmission and spread. SARS-CoV-2 is a highly infectious virus which attacks many organs in the human body. Previous studies have pointed out correlations between susceptibility to SARS-CoV-2 and genetic, environmental, and socioeconomic factors. This study explores the role of genetic variations in three human genes, ACE2, TMPRSS2, APOE, as well as Vitamin D in susceptibility to SARS-CoV-2 infection. These factors were chosen due to their role in SARS-CoV-2 infection; ACE2 and TMPRSS2 are associated directly with viral entry into a host's cells, APOE is associated with higher susceptibility to other respiratory infections, and Vitamin D is directly involved within the immune system. For this study, genetic data were retrieved from the 1000 genomes project. Vitamin D data was retrieved from previous studies and databases. Data on SARS-CoV-2 incidence and case fatality rate of specific global populations were retrieved from WorldOMeter. Spearman's Rho and Pearsons R correlational analyses were utilized to compare incidence and case-fatality rates. A total of 15 APOE (n=3), TMPRSS2, and ACE2 (n=6 each) mutations had a strong correlation with SARS-CoV-2 mortality or incidence. Vitamin D data, when analyzed along with SARS-CoV-2 incidence and case fatality rate, showed no significant correlation. Overall, while genetic variations likely contribute to susceptibility to SARS-CoV-2, they alone cannot explain the major differences in SARS-CoV-2 infection and fatality rate among global populations. More holistic studies of the role of social and economic factors are essential to provide a better understanding of the causes of susceptibility to SARS-CoV-2.

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Minimum Inhibitory Concentration and Minimum Bactericidal Concentration of Antimicrobial Peptide Maximin 3

Woosuk Kim[1]
[1]SUNY Purchase College

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Antimicrobial peptides (AMPs) are special types of proteins innate in many organisms that have a wide range of inhibitory abilities towards bacteria, fungi, viruses, and parasites. Interest and importance in studying and discovering new antimicrobial substances, including the AMPs, has grown significantly as the threat of antibiotic-resistant bacteria has grown. Maximin 3 is an antimicrobial peptide from the Chinese red belly toad, Bombina maxima, and studies show that Maximin 3 has a wide range of inhibitory effects towards many bacteria and viruses, including HIV. When studying the inhibitory and bactericidal effectiveness of an antimicrobial substance on a specific type of bacteria, evaluating the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) is crucial. MIC refers to the minimum amount of antimicrobial substances needed to inhibit the growth of the bacteria, and MBC refers to the minimum amount of antimicrobial substances needed to kill the bacteria. Both Maximin 3's and ampicillin's MIC and MBC values for E. Coli were experimentally tested to compare their relative inhibitory and bactericidal effectiveness. MIC was determined by observing any visible inhibition overnight from the antimicrobial substances pipetted into 12-well-plates containing bacteria cultured in liquid media. MBC was determined by observing the overnight bacterial growth on agar plates after transferring bacteria-containing solutions from the 12-well-plates used to determine the MIC. The literature value of ampicillin's MIC and MBC were available for reference, and the experimental result showed that these values were consistent. However, interestingly, the experimental values of Maximin 3's MIC and MBC towards E. Coli were magnitudes greater than that of the literature values. Studying and understanding the MIC and MBC values may be helpful in determining the right amount of an antimicrobial substance needed to treat a specific infection while avoiding possible intoxication due to an overdose of the antimicrobial substances. Additionally, the understanding of the range of MIC and MBC gaps can be useful in determining a better

treatment option clinically, as a narrower gap of MIC and MBC would indicate a narrower window for possible mutations of the bacteria that can ultimately lead to the development of antibiotic-resistant bacteria.

Isolation and characterization of bacteriophage targeting Acinetobacter baumannii

Nelli Kisliuk
[1]*University at Buffalo*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Multidrug resistant bacterial infections are difficult to treat with conventional antibiotics and they are leading to excess mortality around the world. Novel antibiotic alternatives are critical to address the need for MDR infection therapies, including lytic bacteriophages. The goal of this research is to isolate lytic bacteriophages of clinical relevance for the future treatment of infections due to multidrug resistant (MDR) bacteria. The methodology to isolate bacteriophages included collection of sewer water from the Amherst Wastewater Treatment Facility. Filtrated water, lacking bacteria and containing viral particles, was tested in plaque assays to detect bacteriophages. We conducted experiments to characterize phage replication, lytic activity, morphological features and genome sequencing analysis. Bacteriophages abound in nature and are natural predators of bacteria, evolving with them to bypass resistance mechanisms. We were able to successfully detect and isolate phages against MDR Acinetobacter baumannii, an important opportunistic human pathogen. The herein described phage, named AB2I3, was specific for A. baumannii, and it was stable at freezing temperatures, since recovery from frozen storage resulted in lysis of A. baumannii bacterial cultures. The phage showed it was able to inhibit of growth multiple isolates of A. baumannii. Further studies are ongoing.

K-Pop Today vs. American 90's Film: Study on Male Gaze

Mrs. Faith Lake[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

In this study I will explore the 2020 documentary Blackpink: Light Up the Sky, directed by Carolina Suh, in relationship to the 1998 film War Zone: Violence Against Women in the Streets, by Director Maggie Hadleigh-West. The correlation between the two films is located in Laura Mulvey's concept of the male gaze, which dominates women in visual culture, particularly in the media. Blackpink: Light Up the Sky is about a Korean pop girl-group and its rise to fame, and War Zone is a cinema verité style documentary following a single woman around the streets of New York as she confronts men, in interview form with a camera crew following her, who cat call or inappropriately address women. I will research gender theory to illuminate how K-pop culture participates in a visual exploitation of women in the spotlight, and show how Hadleigh-West disrupts the gaze by directly confronting men on camera who find it suitable to treat women as objects. Studying the two contrasting documentary styles, within their timely eras of popular film styles, I will also dive deeper into how these messages are conveyed through the documentary medium. I will analyze how each film style exposes the motivating concepts presented by its director.

Structural and Functional Characterization of Septu Defense Systems

Ms. Channon Lawrence[1] Anthony Bui, and Joshua Chappie

[1]*Farmingdale State College,* [2]*Cornell University Molecular Biology and Genetics Summer REU Program in the Life Sciences*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Antibiotic resistance is one of the most significant threats to human health. The rise in drug resistance and slow progress in developing new antibiotics has made treating bacterial illnesses a formidable endeavor. Bacteriophage viruses, which infect and kill bacterial hosts as part of their normal life cycle, represent an alternative therapeutic strategy. Bacteria, however, have evolved numerous defense systems to protect themselves. A prime example of this is the widely conserved Septu anti-phage defense complex. Septu systems are composed of an ABC ATPase, PtuA, and an HNH nuclease, PtuB. Little is known about Septu architecture, regulation, and catalytic functions. PtuA homologs are evolutionary related to the ATPase cores of OLD family nucleases, which are also involved in anti-phage defense, and Rad50-Mre11 complexes, which orchestrate DNA repair events across all kingdoms of life. Based on these comparisons, we hypothesize that PtuA serves as a structural scaffold and regulatory subunit while PtuB mediates DNA cleavage functions. To test this hypothesis, we have purified and crystallized both the PtuA/PtuB complex and isolated PtuA protein from different bacterial species. We are currently in the process of optimizing crystals for structure determination by X-ray crystallography and are characterizing the respective ATPase and nuclease activities in vitro using biochemical assays. Results from our experiments will yield novel insights into the structure and function of Septu nucleases and provide a broader understanding of bacterial defense mechanisms, which can help increase the efficacy and widespread use of phage-based treatments for antibiotic-resistant bacterial infections.

Determining the Third Sodium Coordination Site of GLT-1 through Structural Mutagenesis and Expression in Mammalian Cells

Ms. Isabelle Limbert[1], Ms. Karina Zielinski[1], Ms. Mardiya Youssif Traore[1], Mr. Daniel Shulman[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Excitatory Amino Acid Transporters (EAATs) are a group of proteins responsible for maintaining extracellular glutamate concentrations. Deformation of the GLT-1 protein, a subtype of EAATs, has been observed in patients with neurodegenerative diseases such as Alzheimer's Disease, ALS, and Parkinson’s Disease. Healthy GLT-1 proteins co-transport three sodium ions along with one glutamate into the cell while counter transporting one potassium ion. Each ion has a binding site within the transporter and causes conformational change after binding. The specific binding sites of all ions have been found except for the third sodium binding site (Na3), which has only been predicted through molecular dynamics simulations. While it has yet to be confirmed within mammalian systems, Na3 has been identified within a bacterial GLTPh, isolated from Pyrococcus horikoshii, acting as residues of interest moving forward. Thus, the goal of this study is to determine the location of Na3 in GLT-1 through monitoring transporter function as a result of structural change observed utilizing glutamate uptake and efflux assays. Preliminary results have shown some important structural components, however, more optimization is required. This project will aid in understanding the mammalian transporters and provide insight to aid in therapeutic design.

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Coverage of the Chernobyl Disaster in 1968 from American Perspective

Allison Logan[1]
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On April 26, 1968 a nuclear eruption rocked Europe. The accident generated a fire that released significant amounts of radioactive material into the environment. It was the worst nuclear disaster in history. Near the city of Pripyat, in what is now Ukraine, sits Chernobyl Nuclear Power Plant where reactor No. 4 was set for a safety test that ultimately led to a series of explosions. The blast was so powerful the 1,000 ton roof was ripped right off and a fireball illuminated the night sky. It would be weeks later in May when Soviet leader Mikhail Gorbachev spoke publicly for the first time about the incident, claiming the worst of what had occurred was over. During a radio address to the nation, American President Ronald Reagan condoned the USSR for its unwillingness to share details of the danger of the disaster. This paper analyzes the catastrophic Chernobyl disaster of 1986 and the effects of mass media coverage in America. For this project I will look at newspapers, audio interviews, and news reports from the American perspective to provide evidence for the conclusion that information regarding the Chernobyl disaster released by media outlets impacted the already growing fear of nuclear power in America.

Does poverty affect food insecurity in Buffalo?

Ms. Emily Lonigan[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Through photo and literature research, the problem of poverty and food insecurity in the city of Buffalo reflects the growing overall poverty and food insecurity of the nation, systemic food insecurity and the public health issue of hunger. Using PhotoVoice as a framework for research, this project will reflect the same issues around food insecurity and hunger in the city of Buffalo. PhotoVoice is a participatory research method where individuals take photographs and put them into personal context in relation to a certain topic. Over a week, 50 pictures related to the topic of food insecurity were narrowed down to three photos that draw connections between my perspective and analysis of the topic of food insecurity as it pertains to the city of Buffalo. Through preliminary analysis of local and national statistics about food insecurity and hunger, these photos back up the claim that the trends in Buffalo match national trends on this issue. Many systemic changes are needed to alleviate this problem nationally and in the city of Buffalo, including governmental changes to requirements for assistance, community outreach, and the re-imagining of actual food budgets for assistance recipients. Included in this project are resources for those interested to get involved and to make real, necessary change to alleviate this growing issue.

Multiplex DNA Sequencing of Bacterial Colonies Isolated From Western New York Waterways Using Oxford Nanopore Technology

Ms. Zilin Lu[1], Ms. Xinyi Yu[2]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The Metagenomics Education Partnership is an NIH Science Education Partnership Award designed to involve area high school (HS) teachers and students in a citizen science research project to increase their exposure to genomics and DNA sequencing. Genomics and other STEM related fields are increasingly more important in the US, but interest in STEM careers remains low among HS students. Project participation is designed to stimulate interest in genomics related careers among the HS student participants. The project involves both metagenomic sequencing of water samples and the sequencing of the genome of one bacterium grown from the water by each participant school. Work described is related to the whole bacterial genome sequencing part of the project. Genomic DNA isolation and multiplex sequencing protocols were developed to minimize exposure of HS students and teachers to potentially hazardous microorganisms. Water samples were collected by HS teachers from the Research Lab School BPS 366 (Broderick Park) and LeRoy High School (Oatka Creek) in October of 2021. Concentrated samples from the water collections were spread onto tryptic soy agar plates. Multiple colonies were chosen for analysis and used to make frozen stock cultures. Liquid cultures from the bacterial stocks were then used to prepare replicate samples of bacterial pellets of known wet weight in microcentrifuge tubes that were then stored frozen at -80°C. This allowed DNA extraction by HS students to begin with immediate addition of lysis buffer to frozen pellets, minimizing handling of liquid cultures of potential pathogens. A modification of a PCR-based barcoded sequencing library preparation was used to multiplex the isolated genomic DNA using Flongle flow cells in Oxford Nanopore MinIon sequencers. Resulting sequences were uploaded to an online phylogeny tool (EPI2ME) to identify the genus or genus and species of each colony. Teachers and students then picked one colony to safely sequence, with the goal of constructing a draft genome sequence for further bioinformatics-based research. A summary of the methods development as well as results of HS student sequencing research will be presented.

The Association between ADHD Drug Misuse and Other Psycho-Substance Abuse

Ms. Sana Malik[1], Nicole Scott[1], Devon Umeozor[1], Cassandra Burrows[1], Dennis Cregin[1], Julia Horowitz[1], Natalie Yuvanavattana[1], Courtney Hinkley[1], Jared Zubin[1], Humza Khan[1], Hubert Zhou[1], Gabrielle Camillery[1], Samantha Bonventre[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Across North America, the abuse of ADHD medication on college campuses has become an increasingly prevalent problem, as students are becoming more acquainted with their potential as a study aid. Previous research has revealed that students who use ADHD medication in college are significantly more likely to develop a dependence on alcohol and other drugs than those who have never taken ADHD medication. The purpose of this study is to assess whether there is a relationship between ADHD medication use and other psycho-substance use such as depressants and stimulants. This study has collected survey responses from 761 undergraduate students from various US colleges. The survey included self-reported dietary patterns, mental and physical health, ADHD medication use, and perceptions regarding illicit study drug use. The anonymous survey was built in Google forms, data was analyzed using Pearson's Correlation Coefficient in SPSS, Version 26.0. Our data has indicated a significant positive correlation between illicit ADHD medication use with depressants and stimulants (caffeine) among college students. Our results support previous studies that described how a dysfunctional prefrontal cortex (PFC) is linked to impaired response inhibition and riskier decision making, such as the comorbid use of other stimulants and depressants. Thus, our results suggest that those who use ADHD medication may be inclined to abuse other substances as well. By addressing the abuse of study drugs on college campuses, we may hope to curtail the abuse of other prevalent substances among college populations.

Making New Enemies: The American Government and Media as Combatants in the Iran-Iraq War

Mr. Matthew Matsulavage[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The Iran-Iraq War of 1980-1988 has had devastating political and social consequences for the Persian Gulf region for decades. While the United States official foreign policy called for neutrality during the war, it is well documented that the US and its allies were intimately involved in the war. With this historical research project, I will demonstrate how the US government's supposed neutrality during the first four years of the conflict prolonged the conflict by alienating both combatants. I will also present how the American press's coverage of the war did not present a neutral stance, instead pushing Americans to support one side or the other, often mirroring the government's classified "favorite" at the time. A careful reading of declassified CIA and State Department documents reveals the United States fueled the conflict by providing clandestine support for both sides in an attempt to preserve a favorable position in the region over its cold war adversary, the Soviet Union. Through examination of newspaper articles, broadcast news transcripts, and contemporary journals I will show that the US media often selectively discussed information about the conflict in order to bolster the United States' image and sway public opinion to the side of one combatant over the other. The tendency of the American media and government to play both sides at various stages of the war often pushed Iran and Iraq to continue fighting; losing American support was viewed as an existential threat to their sovereignty which left them no other option but to fight. The US intelligence community and media were seemingly in agreement, the best outcome for the Iran-Iraq war was no outcome. Letting both sides exhaust each other while still receiving token support from the US was thought to be their best option when the security concerns of the Cold War were taken into account.

I Just Want You to Know Who I AM

Latisha Matthews[1]
[1]*Buffalo State College*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

My research question that I am posing is what does poverty, homelessness, and affordable housing look like in Buffalo. My background information comes from doing research and reading about this national issue. Nationally, homelessness, the lack of affordable housing, and the discrimination of finding affordable housing is a problem. In the United States there are an estimated total of 553,742 people that are homeless. I'm going to use photovoice to collect data and obtain information to see if homelessness is a growing crisis in Buffalo. Photovoice is a participatory research method where I went out into the community on different occasions to take over fifty pictures. I picked the best pictures for my poster and completed an analysis to help everyone understand from my perspective that homelessness is an issue to be concerned with here in Buffalo. My final conclusion is that our community and policy makers should be more concerned with providing a remedy to this local issue before we become the spotlight of a national concern. My overall intention of doing this research is to raise awareness on behalf of the individuals facing homelessness or an affordable housing crisis to be recognized. I want to see tax dollars used to create incentives for individuals struggling to keep their rent paid and keeping their homes out of foreclosure. Housing should be made more affordable to meet our living wages.

Relationship between SIRT5 and Glycosylation of Exosomal Membrane Proteins

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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

While the hallmarks of cancer are well-studied, aberrant protein glycosylation is emerging as a defining characteristic of cancer cells. A developing field in cancer biology involves investigating the role of protein glycosylation on extracellular vesicles (EVs), particularly exosomes. Exosomes are well known as mediators of cell-to-cell communication and have been shown to promote invasion and metastasis of cancer cells. Moreover, several studies demonstrated that a family of (NAD+)-dependent lysine deacylases, known as sirtuins, play a diverse role in cancer that could affect exosomes. While much is known about how the sirtuins function in cancer, only recently has the mitochondrial sirtuin 5 (SIRT5) been uncovered as a novel tumor promoter in aggressive cancers. The purpose of this study is to understand the relationship between SIRT5 and glycosylation of exosomal membrane proteins. To do this, we used SIRT5 knockout (KO) cancer cell lines, MDA-MB-231 (breast cancer) and HCT-116 (colon cancer) cells. First, we investigated whether SIRT5 KO breast cancer cells secreted exosomes with altered protein glycosylation. Second, we determined whether exosomes from cells with deficient SIRT5 were taken up by recipient cells differently than exosomes secreted from cells with high levels of SIRT5. Here, we report that cells depleted of SIRT5 secreted exosomes with higher levels of protein glycosylation. Moreover, exosomes secreted from SIRT5 KO cells were taken up at lower rates than exosomes from cells with higher SIRT5 due to the different levels of membrane-bound protein glycosylation. Overall, this research advanced our understanding of how exosomal uptake impacts cancer progression. Furthermore, studying SIRT5 holds significant therapeutic implications because targeting SIRT5 to hinder cancer progression in cells is more effective than other cancer treatments as it does not damage normal, healthy cells, while selectively inhibiting the progression of cancer cells.

Spiral Function and Its Application

Fatima Mohamed[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

In mathematics, a two-dimensional spiral is a curve which emanates from a point, moving farther away as it revolves around the point. There are seven types of spirals: Archimedean spiral, Euler spiral, Fermat's spiral, spiral of Theodorus, hyperbolic spiral, golden spiral, and logarithmic spiral. Our research focus on the logarithmic spiral (most often found in nature) and its application in real life.

We consider a problem of finding trajectories of 4 moving objects, which originally stationed at the corners of a square of length s, and move toward a neighboring object clockwise with a constant initial speed v. We (1) apply mathematical modeling techniques, utilizing objects' symmetry; (2) establish a system of first-order differential equations that involve the objects' positions (x(t), y(t)), where t is the time; (3) use computer software Mathematica to obtain logarithmic spirals as objects' trajectories. We further study these trajectories' geometric properties theoretically and computationally, such as polar slope angle, curvature, sector area, arc length, circle inversion, etc. and come up with more interesting findings. A plan to further investigate more general cases is under way. These cases involve (1) objects are moving on a

rectangle instead of a square (thus no position symmetry), with same initial speed; (2) objects are moving on a rectangle with different initial speeds for each of the moving objects.

Copland and Dickinson: A Posthumous Artistic Collaboration

Julia Monteferrante[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

With over 1,700 individual poems, Emily Dickinson's oeuvre masterfully expressed a broad range of topics central to the human experience including nature, love, and death. American composer Aaron Copland (1900-1990), was so deeply inspired that he was willing to explore a genre that was mostly new to his professional work: the song cycle. A song cycle is a collection of solo vocal songs with piano accompaniment that are meant to be performed as a complete work but in many cases can be performed separately. As a pianist, Copland studied multiple volumes of Dickinson's writings to compile the poems he would utilize in his cycle. Copland's Twelve Poems of Emily Dickenson (1950) explores the great poet's ideas through the power of music itself. The cycle lacks recurring musical motives and embodies no overarching narrative, leading critics to believe that Copland chose the poems at random. This couldn't be farther from the truth: the poems were selected with extreme care. These twelve poems explore the topics that are prevalent in all of his post-war compositions, both vocal and instrumental. Copland pushes the boundaries of tonal music to bring these beautiful texts to life, while leaving them simple enough to comport with Dickinson's modest lifestyle. My analysis of these songs will reveal the purpose, meaning, and musical elements of Aaron Copland's Twelve songs of Emily Dickinson.

Housing poverty in Copiague

Halle Moore[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

What does poverty and housing look like in Copiague, New York? US Americans are struggling to stay housed because wages have not been growing significantly for decades while housing costs have soared. More than half a million US Americans are homeless, according to HUD, though of course counting people who are homeless accurately is close to Impossible. The situation is even worse for US Americans of color. To obtain data I am using a method called Photovoice. Throughout this method process, it starts with a literature review. Secondly, we will identify the research question. Third, I will be using the data analysis in the format of "SHOWeD". Which ultimately is depicting what I see, what is happening, the correlation to our lives, the purpose of its existence, and lastly what can we do about it. When bringing my research to a conclusion I intend to report my findings on a poster. At the time of preparing my abstract, I expect to see the relevance to my literature in comparison to my findings. When attending my poster, you can expect to see a great number of photos that will foster your mind to think about the poverty in Copiague alongside statistics. As a result, I hope to engage and raise community awareness about poverty and housing in Copiague.

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Symptoms of ADHD and Financial Behavior

Mikaila Morgan[1]
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There is little research examining financial well-being among college students with ADHD, although work suggests that adults with ADHD are at increased risk for financial problems. This study follows up on a previous study (Norvilitis, Linn, & Merwin, 2019), which found that while there was no relationship between ADHD symptomatology and current or expected debt, there was a relationship between ADHD symptomatology and increased anxiety about money, debt, and financial wellbeing. This study examines if there are specific attitudes or behaviors present in students with ADHD symptomatology, such as gambling or impulse buying. The study is being completed through a survey given to college students attending SUNY Buffalo State.
To date, there are 77 participants (59 women, 17 men, and 1 nonbinary). Preliminary analyses show that those with more symptoms of ADHS may be less confident in their ability to handle money ($r=-.18$, $p= .13$). Data are continuing to be collected, and more in-depth analyses will be presented at the conference. The results may highlight the opportunity for ways to prevent future financial concerns college students may face. The results may also help in predicting problems down the road, leading to more effective interventions.

Game-Based Cyber Security Training for Female Adolescents

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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

As the world moves to a technological front, cyber crimes are on the rise, targeting anyone and everyone, and society is unaware. To combat this, the awareness of cyber crimes should be taught to the youth. Providing the youth with information is a challenge unlike any other, however using platforms they are accustomed to helps in breaking the barrier. Games using cyber security applications have proven to be highly effective in teaching adolescent males about the cyber crimes occurring. This research proposal investigates how to take this information and create a platform so that there is success in educating the female youth on cyber security. The research question being asked is: “What can be done to increase the participation of adolescent females in learning cyber security?” This specific research proposal hypothesizes that using a method geared towards the female population, such as introducing aspects of social media, beauty, skincare, or fashion in a game or through a platform would provide for an effective outcome in bringing females to gear their attention towards cyber crimes. The method used is qualitative as the research is conducted through a period, collecting data, and tracking if female students are developing an interest toward the topic of cyber security. One group will be using the game based training that is generic, while the other uses training geared toward female interests. Through the four weeks, students’ will play a game weekly and post the training, complete a survey, and discuss how they felt about the topic at hand. Regarding ethical concerns, all students will be given a consent form, requiring guardian authorization. No personal information will be disclosed through the research. The data will solely be used for research, and to help further research along the lines of biometrics. All data coming in will be interpreted anonymously. Overall, the end goal is to see if females gain an interest towards cyber security if the teaching method is made geared toward them. Cyber crimes occur on the daily. Training students now would help secure the technological future.

An Empirical Study of Factors That Impact COVID-19 spread in New York State

Elizabeth Nash[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The Coronavirus Disease 2019 (COVID-19) epidemic continues to cause an international public health emergency. It leads to the death of between two and four thousand people a day just in the United States alone. The world has been guided on what should be done to help combat COVID-19, such as getting vaccinated. This project is going to find the relationship between the COVID-19 cases as of February 17, 2022, and vaccine rates, specifically in New York State (NYS). Along with vaccines, this study will explore the relationship that COVID-19 cases have with other factors, such as gender and race. The data used for this research was received from the Center of Disease Control (CDC) website and these factors were used to see how they affected the mortality and infection rates. Linear Multiple Regression will be carried out using SPSS to test the significance between the data.

Design and Implementation of a Touchscreen Control System for a Drag Finisher

Dr. Maryam Nasri[1], Kiera Moore[1], Dustin Shepard[1], Austin Venn[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

We had designed and been implementing a controller running through a touchscreen pad to adjust the speed/cycle of a drag finisher. A drag finisher is an automated mass finishing device that smoothes the outer surface of parts by mechanical abrasion. It generally works as follows: 1) Individual parts are fixtured to a tool. 2) the tool is lowered into a container of small, abrasive particles called “media.” 3) The tool rotates and orbits via a planetary gear system, “dragging” the parts through the media. 4) A detergent is dispensed into the container, cleaning and lubricating the parts. 5) The media abrades the parts’ outer surface, smoothing/polishing/cleaning it.
The following steps have been completed: First, developing a circuit of electromechanical devices (motor, etc.) with guidance from CPD; Second, programming an Arduino microcontroller with a touch-based input device; Third, creating a basic GUI (Graphical User Interface) that controls each device.
We have been using Arduino Programming to control a Motor Mega board through Arduino UNO capable of rotating a 24V DC motor for the first two parts. Since the control features should be interfaced with a touchscreen pad, we replaced the Arduino nano with Arduino Uno during the design process. The GUI part was initially programmed and simulated using the TinkerCAD application, but eventually, it should be transferred to the Arduino Board to be run through the touchscreen pad. Using the GUI installed and implemented on the touchscreen pad, we can control the motor features such as speed and cycle by selecting options from the touchscreen pad and sending signals to the motor through the ports.
In the other part of the project, we are using a 3D printer to print the body and casing for the drag finisher and will adjust the parts as needed for the Arduino board and touchscreen pad to seat correctly, and the wiring is protected/secured so when in use it does not come undone and create a hazard.

Problematic Attachment to Social Media & Digital Addiction: The Link Between Age and Gender

Kemea Parsons
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Social media has affected our lives in various ways. Social media has been a tool used in ways to communicate with people around the world. Even though social media has created great opportunities it has also had a turbulent outcome on people's mental state. Digital addiction is a common issue that we have in today's society. Social media has now been a contribution to addiction because of the obsessive and impulsive effect it can have on someone's behavior. Millions of people use social media as a way to self-gratify, boost self-esteem, maintain self-worth, and portray a self-image. People also can use it to hide behind a persona and fake identity. People have become attached to having an online influence, and it can become problematic. This study gives an assessment of how gender and age can make a difference regarding who is more prone to being addicted to social media. I will analyze how social media can affect an individual's mental well-being and insecurities people may have because of social media. It will also determine why people who are a certain age and gender are more likely to use social media. The research conducted will show possible factors through a survey and through the framework of the attachment theory.

Cooperation of Selfish Genetic Elements in Stalk-Eyed Flies

Ms. Suhani Patel[1], Ben McPherson[1]
[1]*SUNY Geneseo*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

SGEs are selfish genetic elements that increase the likelihood of their own transmission regardless of the host's best interest. Transposable elements (TEs) and meiotic drivers are both types of SGEs. SGEs subsequently result in genetic conflict as they disrupt functional elements in the genome. We are working to better understand the cooperation of selfish genetic elements in Stalk-Eyed flies. Transposable elements are counteracted by small non-coding RNA molecules called piRNA. These RNA molecules work by reducing the expression of TEs by degrading TE RNA transcripts. Prior work in stalk-eyed flies has shown that TEs are expressed at a higher rate in male carriers of meiotic drive (SR males). We are comparing the expression of piRNA in SR and wild-type males using small RNA sequencing analysis software (proTRAC, PILFER) designed for this type of data. If meiotic drive and TEs cooperate, we would expect to see increased expression of piRNAs targeting TEs in SR males.

Chemotherapy drugs, Doxorubicin and Imatinib, induce changes in oxidative stress in the MDA-MB-231 cell line

Mr. Ayush Patel[1], Mr. Kevin Jiang[1], Mr. John Saypoff[1], Ms. Mei Mei[1], Dr. Susan Flynn[1]
[1]*Binghamton University*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Imatinib, a tyrosine kinase inhibitor, is frequently prescribed to patients as a form of treatment for various types of cancer: breast cancer, chronic myelogenous leukemia (CML), gastrointestinal stromal tumors

(GIST). Imatinib competes with ATP for the ATP binding site on tyrosine kinase receptors (TKRs); this prevents the TKRs from phosphorylating proteins in various intracellular signaling pathways which control cell proliferation, survival, and growth. Doxorubicin, a chemotherapy drug, is also used in the treatments of cancers; it is mainly used in combinations with other drugs in the treatment of breast, ovarian, lung, and stomach cancers. Doxorubicin has been found to intercalate into DNA which prevents DNA replication resulting in cell death. It is also known to be involved in the process that results in the cleavage of the CREB3L1 protein which drives the transcription of genes involved in the inhibition of cell proliferation. Oxidative stress is known to be a contributing factor to cancer, neurodegeneration, and kidney disease. In the case of cancer, this study aims to determine whether Doxorubicin and Imatinib have an effect on oxidative stress and cell viability.

The Emergence of Heavy Metal Subgenres in 1980s New York State

Mr. Joseph Patti[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This project focuses on the emergence of heavy metal music subgenres throughout New York State in the 1980s. For decades prior to the 1980s, the term “heavy metal” had been coined to refer to numerous bands that decided to stray away from regular (and successful) rock and roll music, in favor of a heavier, faster, and more aggressive style of music. Bands like Black Sabbath, Led Zeppelin, and Deep Purple are considered the founders of the “heavy metal” genre, and they emerged in the 1960s and 1970s. These bands were defined by a certain sound that was easily distinguishable from previous bands, as they incorporated new elements into their recordings that appealed to many people around the world. Thrash metal bands like Anthrax andNuclear Assault, and death metal bands like Cannibal Corpse and Suffocation, stormed onto the music scene in 1980s New York State, and were met with praise, as well as criticism. New York State had an especially influential impact on the new scene of metal subgenres that would emerge in the 1980s, as bands from all areas of the state, from the thriving scene in New York City to Upstate and Western New York metal circles, took influence and ideas from these heavy metal pioneers and created new subgenres of their own. It is undeniable that the 1980s brought about a more unique side of the heavy metal genre that had never been heard before, for reasons including competition and cultural changes amongst youth musical circles. Lyrics also changed along with these new metal acts, and was very controversial and often frowned upon by many people on a global scale. Regardless, New York State bands had a pivotal role in the new scene of heavy metal subgenres that came out of the 1980s, and provided the blueprint for bands to continue to produce this type of music well after the 1980s came to a close, even into today.

Cloning of SOD genes.

Aditya Patwardhan[1], Trevor Typhair[1], Dr. Karina Ckless[1], Dr. Joel Parker[1], Dr. Megan Valentine[1]
[1]SUNY Plattsburgh

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The destructive effects of Reactive Oxygen Species (ROS) are thought to be related to aging and age-related disorders. To combat these ROS, the cell synthesizes superoxide dismutase (SOD), an enzyme that converts harmful superoxide molecules into hydrogen peroxide, that either functions as a diffusing signaling molecule in the cell or is further broken down to water and oxygen by the action of the enzyme catalase. The family of SOD genes is highly conserved across eukaryotes, and three of these genes have been identified in the Drosophila genome. These conserved genes are SOD1, SOD2, and SOD3. SODs 1 and 3

contain Cu and Zn, whereas SOD2 contains Mn. Of the Cu-Zn bound SODs, SOD1 is thought to be localized in the cytoplasm and mitochondrial inner membrane space, while SOD3 is expected to be secreted outside the cell. SOD3 has two variants: long variant (SOD3L) and short variant (SOD3S). The long variant has a conserved mRNA coding region that may contain a hydrophobic polypeptide chain at its N terminus, while the short variant does not possess this same hydrophobic tail. We plan to determine the location of expression of SOD1, SOD3L, and SOD3S by adding a different fluorescent tag to each of these genes using Gibson Isothermal Assembly. Once placed into a plasmid vector, the genes with their tags can be expressed in mammalian cell lines to determine the location of the fluorescent tags. This study will elucidate the cellular location of these three different SOD genes, shedding light on their roles within, or outside of the cell.

HVAC ASHRAE Design Competition

James Purpura[1], Steven Baxter, Brad Schofield, Jason Bolea
[1]*SUNY Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

ASHRAE is a global society that was founded in 1894. As a company their mission is to use sustainable and efficient technology to better the well-being of humans. Every year ASHRAE holds a worldwide design competition in order to educate upcoming engineering students about work in the field of HVAC systems. Heating, ventilation, and air conditioning systems (HVAC) are an important part of any functioning building. The competition is composed of three parts. Our group will be participating in the HVAC design calculation portion. Our job for this competition is to calculate the heating and cooling loads in each room, hallways, and space for a two-story art building located in Sydney, Australia. The building is composed of visual arts, operating rooms, a student union, music rooms, and a parking lot. The task at hand will take into consideration the daily temperature, humidity, and deducing occupancy of each room at certain parts of the day. These factors, along with the ASHRAE standards, owners' requirements, and budgeting, will drive the team's decisions in both zoning plan and designing the HVAC unit. Our system will have a low life cycle cost and have a low negative environmental impact. It will also promote comfort and maintain health for its occupants with a creative high performance green design and seamless synergy with the architecture. The calculations will be developed using a program called HAP which was developed by Carrier Inc. Once the calculations are done, our group can zone the building properly and pick the correct equipment to be used to ventilate the building. The student projects will be recognized by ASHRAE at the 2023 ASHRAE Winter Meeting scheduled for February in Atlanta, Georgia.

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Increasing biodiesel algal lipid density by manipulating glycerol levels in algal growth mediums

Ms. Samantha Ross[1], Ms. Lauren Saggese[1], Mr. Aiden Williams[1], Mr. Alex Lazaro[1]
[1]*SUNY Geneseo*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

To many, algae are the pesky product of eutrophication in local lakes and ponds. In the laboratory, algae is a promising competitor for renewable resources of biodiesel.
Algae is versatile in the way that it ingests a notable amount of carbon emissions from the atmosphere. These emissions are then converted into energy-dense lipids, which can be harvested and transformed into

biofuel. Despite the advantages, the amount of lipid yield is not significant enough to be considered a worthwhile option. Before the fuel industry can accept algae farming as a worthy alternative to fossil fuels, the reason for harvesting must be maximized further. Our purpose aims to make algal lipid extraction more efficient by determining the ideal growing conditions of the algae species Chlorella Vulgaris. Our research explores ways to effectively quantify and compare the algal lipid yield to the various controlled algal growth media and environments. Particularly, testing involves a) the interconnectivity between different algal lipid density and growing mediums and b) the effects, if any, of glycerol. The algal media used were BG-11(algal culture medium) and BBM (Bold's basal medium). Initial data suggested that density growth was higher when grown in the glycerol and BBM mixture. The results obtained with further experimentation are presented hereafter.

The effect of artificial sweeteners on gut bacteria

Kevin Ruffler
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Most commonly found in diet beverages, artificial sweeteners have made a name for themselves. While the pitch of a zero-sugar drink may sound appealing, could these "healthy" beverages actually have the opposite effect of which they are marketed for? According to a study from 2018, consumption of artificial sweeteners has been linked with adverse effects such as cancer, weight gain, metabolic disorders, type-2 diabetes and alteration of gut microbiota activity.
The effect of aspartame (Equal; about 200 times sweeter than sucrose - regular sugar), saccharine (Sweet & Low; about 300 times sweeter than sucrose - regular sugar), and sucralose (Splenda; about 600 times sweeter than sucrose - regular sugar) on the growth of E.coli and Bacillus cereus was tested. These tests included growth of the bacteria on agar plates that contained different concentrations of the sweetener and fermentation curves of liquid cultures with different concentrations of the sweeteners. The research demonstrated that about 10 packages of Sweet & Low in 8 ounces of liquid decreases bacterial growth.
To test for a possible effect of the conditions in the stomach, the artificial sweeteners were exposed to stomach conditions. The imitation of these conditions did not change the effect of the sweeteners on the growth of the bacteria. Additionally, the testing of chemically modified artificial sweeteners is part of this research.

Aerobic Oxidative Deprotection of Hydrazones and Oximes by Mesoporous Manganese Oxides

Bremmer Belisario[1], Anton Ruppert[1]
[1]*Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

The deprotection of organic functional group is a popular technique in multistep selective organic transformation. Traditionally, the deprotection reactions are performed using mineral acids and bases. There are few reported catalytic routes which involves the use of stoichiometric toxic oxidants and hazardous peroxides. Herein we used mesoporous manganese oxide nanomaterials for the deprotection of hydrazone and oxime derivatives to corresponding carbonyl functional groups using aerobic and mild reaction conditions. The materials are composed of nanoparticle aggregation with a mesoporous network. Both hydrazone and oxime derivates are converted to corresponding carbonyl compounds with excellent selectivity. Mechanistic study revealed involvement of radical intermediates by electrons transfer to Mn

centers followed by oxygen activation. Mild reaction conditions, absence of any acids and bases and use of air as the sole oxidant make our catalytic protocol attractive for deprotection chemistry.

Russian National Identity and the Origins of the Ukrainian Conflict

Mr. David Schuler[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Starting with Russia's annexation of Crimea in 2014 and continuing with the Russian invasion of Ukraine in 2022, questions have arisen concerning the motivations for Russia's aggressive foreign policy in Eastern Europe. This project focuses on the concept of a Russian national identity, or lack thereof, following the collapse of the Soviet Union in the late twentieth century. Recent research suggests a clear vacuum where a sense of Russian identity ought to be, particularly following the failure of a communist empire. This lack of identity and national purpose allowed Vladimir Putin to secure his leadership position of the Russia state and exploit the notion that Russia must become/remain a significant player in the international system. Putin's rise to power then may be understood in light of his carefully nurtured desire amongst the Russian people to remake the glory days of the Russian and Soviet Empires, thus leading to an aggressive Russian foreign policy towards Eastern Europe.

Synthesis of rotaxanes with triphenylphosphine as a stopper group.

Htoo Shee[1], Dinah Bell[1]
[1]SUNY Polytechnic institute

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Mechanically Interlocked molecules are the perfect combination of covalent and mechanical bond along with a uniquely dynamic feature, i.e., restricted molecular motion within this molecule. One such category of the interlocked molecules is rotaxane. They are mechanically interlocked linear molecular species and a cyclic molecular species, which are bonded together in a threaded by a non-covalent bond. Dynamic property comes from the fact that the macrocyclic ring inside can move freely between the one stopper to another since it is not covalently bonded to the rod. We can control this movement by changing the functionality and polarity of the end groups, ring, and the rod. In this presentation, we focus on the synthesis of rotaxane, using 1,6 dibromohexane linear rod with triphenylphosphine as a stopper group and the macrocyclic species, such as beta-cyclodextrin, crown ether, and cucurbit[6]uril will be used as the moving molecule in the rotaxanes.

Business Students' Perceptions of Personal Development Programming: The Role of COVID-19

Ms. Emma Stelley[1], Mr. Matthew Desimone DeSimone[1]
[1]SUNY Geneseo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This study examined undergraduate students' perceptions of the School of Business (SoB) Professional Development (PD) workshops at SUNY Geneseo before and after the COVID-19 Pandemic. Specifically, this project examined which items in the SoB PD Evaluation (SPE; a = .889; 7-items) significantly predicted

variance in students' overall experience scores. Data were collected from undergraduate students (N = 559) using an online post-workshop survey.
Before COVID-19, all bivariate correlations between the SPE composite score and SPE items were statistically significant ($p < .01$) ranging from weak ($r = .356$) to strong ($r = .702$) associations with students' overall experience score. After COVID-19, all bivariate correlations between the composite score and SPE items remained statistically significant ($p < .01$) ranging from moderate ($r = .440$) to strong ($r = .668$) associations with students' overall experience scores. These analyses identified differential associations at both the composite score and item level in the SPE before and after COVID-19. Following these findings, two univariate regressions were calculated revealing differences in the variance explained by the SPE composite score on the students' overall experience scores before, Adjusted $R2=.461$, $F(1, 68)=58.145$, $p<.001$, and after COVID-19, Adjusted $R2=.547$, $F(1, 251)=303.659$, $p<.001$). To better understand the variance explained by the SPE composite score, hierarchical multiple regression models employing SPE items were calculated. The models revealed the unique and differential effects of the SPE items on students' overall experience scores. The findings offer insights into the optimal conditions for professional development programming in the post-COVID world.

Gordon Parks and the Black Experience

James Timothee[1]
[1]*Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This paper will draw the reader into the lens of photographer Gordon Parks and situate him in the tradition of black photographers from slavery to present. I will examine the documentary films A Choice of Weapons: Inspired by Gordon Parks (2021), directed by John Maggio, and Through a Lens Darkly: Black Photographers (2014), directed by Thomas Allen Harris. Both films demonstrate the ways black photography impacted black culture over the last 150 years. In photographing the black experience, Gordon Parks shows us why he describes his camera as his "weapon of choice." Thomas Allen explores the role of photography in African American lives, and how photographs define the identity of black people. While both documentaries shine a light on black experience, the directors employ differing tactics of documentary construction and form to explain these stories. The project will investigate the impact of these directorial choices in documentary biography on our understanding of this visual history.

Examining Immigrant vs. Native-Born Cause-Specific Mortality and Age at Death Patterns Between 1892-1897 in Forest Lawn Cemetery, Buffalo NY.

Ashley Weaver[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

This research project analyzes data from scans of the Death Register Volumes D and E from Forest Lawn Cemetery in Buffalo NY to examine cause-specific mortality trends and mean age at death in immigrant and native-born populations from 1892-1897. While there have been studies on the topic, they all have used data on current immigrant populations, such as from Asia, Latin America, and the Caribbean. My research reflects an earlier immigrant population before a major shift in origin countries occurred after the Immigrant Act of 1965. I recorded name, place of birth, age at death, date of death, and cause of death of 250 individuals from each of the four different groups: immigrant women, native-born women, immigrant men, and native-born men. I matched for age for the cause of death analysis and categorized the causes of

death into 9 major categories. Immigrant women (61.2 years) lived longer than native-born women (50.7 years), and immigrant men (59.5 years) lived longer than native-born men (47.7 years), supporting my hypothesis. Immigrants and native-borns differed in their causes of death. Native-born women were disproportionately affected by infectious disease and debility, while immigrant women were disproportionately affected by intestinal causes of death. Native-born men died from injury disproportionately more than immigrant men. The other categories, for both sexes, had small margins of disparity. Both the age at death and the causes of death analyses illustrate that nativity (or immigration) played a role in mortality in those individuals buried in Forest Lawn between 1892 and 1897.

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The Bottom Line: Fast Fashion's Effect on the Earth and Those Who Inhabit It

Ms. Amanda Wenner[1], Martie Jones[1]
[1]SUNY Buffalo State College

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

To the detriment of the environment and the human psyche alike, Fast Fashion has become the leading method of producing mass amounts of low-quality, low-priced clothing at a staggering rate. While the accessibility of inexpensive "trendy" clothing is a blessing for some, it comes at the cost to the environment and the well-being of the laborers who produce it. This literature review intends to uncover the various impacts Fast Fashion has on (a) the environment, (b) the world economy, and (c) the self-image of many young people. Few attribute pollution, global warming, or low-self esteem to the fashion industry. Yet, overproduction of short-lived styles leads to the waste of money, material, and labor of many; and as the time between fashion cycles continues to shorten, those who wish to stay in style may contribute to poor consumer habits that negatively impact their own mental and financial health, as well as the environment. Yet, we also challenge whether it is the consumer or the manufacturer's job to make a shift in the market which promotes sustainable fashion. Our objective is to address the negative impacts Fast Fashion has on various aspects of our lives, as well as to offer solutions to some of the issues created by this industry. With prior IRB approval, we will interview first year college students in an urban four year public school to gain information about (a) their knowledge about Fast Fashion, (b) their use of Fast Fashion, and (c) their understanding of the environmental impact of their fashion decisions.

Smartwatch Rehabilitation Device

Mr Andrew Woska[1], Mr Shardul Saptarshi[1]
[1]SUNY at Buffalo

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Stroke patients usually have impaired hand functions that hinder their everyday hand movements. Rehabilitation is crucial for post-stroke patients to restore their hand functions. This project develops an ecologically valid and home-based method for patient rehabilitation using an open-source smartwatch along with any smartphone and hearing device. The watch can track and estimate 3-D position and orientation utilizing a Kalman Filter algorithm with an embedded Inertial Measurement Unit. The data can then be used to measure progress in activities designed to help self-rehabilitate the patient faster and more efficiently. Therapists can then use the objective measures to evaluate the patients' developing skills. The project features a mechanism to deliver real time feedback through visual and physical cues. They are

customized to the patient's specific needs in order to encourage and stimulate progress. The constant feedback from the device in conjunction with a rehabilitative therapist can help patients more rapidly achieve functional milestones towards their recovery.

The Moderating Role of Entrapment in the Relationship Between Risk Management & Suicide Ideation

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[1]*Buffalo State*

Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

Suicide ideation (SI) is one of the most destructive symptoms of any mental disorder. Individuals that are afflicted by these symptoms are associated with feelings of entrapment and hopelessness in their day-to-day lives (Chang, 2017; Forkmann & Teismann, 2017). SI has been found to be developed in highly neurotic individuals, introducing the idea that SI can be linked to personality. However, research looking at risk management (RM) of SI tend to focus on deviant behavior, such as addiction (Ammerman et al., 2018). These studies seem to ignore the broader research in RM that has found relationships between an individual's social norms, personality, and childhood trauma in relation to their RM (Huh et al., 2016; Oehler & Wedlich, 2018; Wang et al., 2019). One of these personality factors might be entrapment, which represents the thoughts and perceptions that there is no escape out of a situation, which is usually felt for multiple months, even years (Gilbert & Allan, 1998). Previous research has shown that entrapment can be an independent predictor of SI (Forkmann & Teismann, 2017). Therefore, the central aim of this proposed study is to see if entrapment has a moderating role in the potential relationship between SI and domain-specific RM (e.g., decision making). This will be done through online self-reported questionnaires, which will ask participants about SI, entrapment, hopefulness, and RM levels. The predictions of the proposed study will be that SI, entrapment, and hopefulness will predict certain RM choices. In addition, entrapment and hopefulness will interact with the relationship between SI and RM.

Academically Addressing Poverty Through the Lens Of Those Most Effected

Lawrencine Yarborough[1]
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

What does poverty and school districts look like in Buffalo? Throughout the country, in high poverty school areas, nearly all students are faced with barriers of some kind. Only 68% of 12th graders graduate due to the lack of sufficient academic knowledge because of their hurdles at home, including poverty, leaving their potential either unrecognized or unrealized. I used Photovoice, a research method that includes taking photographs, to help me answer my research question. I was able to collect photos of high poverty school areas in Buffalo. Six western NY school districts are settled in these severe poverty areas, with 36.5% of our youth living below the poverty the line, causing high stress levels among those affected and toxic consequences for their brain development. These findings may also bring together other conditions that low performing students face due to the lack of commitment in their community and social environment. I hope to raise awareness in the community about districts with less resources as that may hinder students from getting the satisfactory academic support with my research. As more people become aware of this problem and involved in trying to fix it, students attending school in high poverty areas will benefit.

Redlining in the City of Buffalo

Ms Jah'Quira Young
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Poster III, SAMC Atrium, April 23, 2022, 1:30 PM - 2:30 PM

My research question is how has Redlining impacted African Americans in the Buffalo area? Redlining occurred in certain areas of communities where banks labeled certain areas of cities as high risk because of the amount of African Americans that are located in the area. They refused to approve loans for mortgages in these areas. Not many minorities had the ability to buy homes because of redlining and racism in the real estate industry across the country. African Americans gaining the ability to buy a home is seen as a luxury that only the rich can afford. I used Photovoice to determine if redlining happened in Buffalo, New York. I took pictures of different areas of the city of Buffalo. The results of redlining can be seen in different sections of the city of Buffalo. This is because banks put caution signs on certain parts of the city where they deemed it to be mixed races or too many African Americans, including the East Side of Buffalo. People could not get loans to purchase homes in these areas. As a community we need to bring awareness to how this is negatively impacting African Americans. The goal of my research poster is to begin to do this.

There's nothing cooking in Buffalo

Hussian Ali[1]
[1]*Buffalo state*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Something that sparked my curiosity while reading the “Hunger in America'' is what does poverty and hunger look like in Buffalo? In the United States there are several programs such as WIC. Even with these assistance programs, many families nationwide are suffering from hunger. The method I used to help answer this question is Photo voice. Photo voice is the method used by health promotion researchers to advocate for positive social changes through photographs. The photos I took illustrate that poverty and hunger is a problem in Buffalo. About 40% of Buffalo residents live below the poverty line which aligns with national data about 13.4% of the US national population lives below the poverty line which is estimated to be about 37.25 million people as of 2020. In this project my intentions are to show how widespread poverty is throughout the entire city to the extent that you can see it no matter what part of the city you go to. I’m hoping to bring some attention to this forgotten issue of hunger which is happening as we speak to so many elders, children, and families.

How does Tetrahymena thermophila adapt and respond to different concentrations of Wright stain?

Emely Arizaga-molina[1]
[1]*Farmingdale State College*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

During my research at Hertitage University I developed an applied bioinformatics research proposal and poster presentation on “How does Tetrahymena thermophilia adapt and respond to different concentrations of Wright Stain?” We determined how Tetrahymena Thermophilia adapt and responds to different concentrations of Wright Stain. We utilized an image processing tool to help us analyze how the different concentrations of wright stain was affecting the Tetrahymena. We observed the changes in the cellular movement and how it adapted. In conclusion, I was able to find that Rsp1 untreated had been the least affected. The cells were moving faster than Wt untreated which was moving at a moderate speed. The Rsp1 untreated cells were also showing that they were moving close to each other, and they followed a linear pattern. On the other hand, the Rsp1 1.0 Wright showed the least amount of activity in the cells. They was no activity in the Tetrahymena, they were moving slowly, and they were less dark.

Tetrahymena thermophilia is a ciliated Protozoa. It is a unicellular eukaryote that is typically in freshwater ponds. During research alongside Dr.Kao, we discovered that the ciliated Protozoa reacts to different concentrations of Wright stain. The Wright Stain affects the Tetrahymena thermophilia in varies ways. The Tetrahymena thermophilia reacts and adapts to these different concentrations of Wright Stain. We observed how these different concentration of wright stains affected the cellular movement in the Tetrahymena and how the Tetrahymena adapted to the different concentrations.

Rachmaninoff's Radiant Russian Rhapsody

Mr. Thomas Arnone[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Very few musical works capture the unbelievable contrast as well as surreal climax in Sergei Rachmaninoff's Rhapsody on a Theme of Paganini op. 43. Being in the concerto genre, which is a musical composition for instruments in which a solo instrument is set off against an orchestral ensemble, the famous and renowned pianist and composer Sergei Rachmaninoff (04/01/1873-03/28/1943) showcases a wondrous expression of this genre with structure in a theme and variations rather than a multi-movement format. Rachmaninoff played the world premiere of his new composition on November 7, 1934 with The Philadelphia Orchestra on the stage of the Lyric Opera House in Baltimore. A child of 19th-century Tsarist Russia, Rachmaninoff composed in a Romantic style rather than adopting the Modernist principles of the 20th-century aged he lived in as American émigré after the Russian Revolution. Being an adaptation of the Italian virtuoso violinist and composer, Niccolo Paganini, there are specific as well as fascinating relationships, similarities, differences, and discoveries found within both Rachmaninoff and Paganini's works. This Rhapsody features 24 variations, yet has an immediately audible story-telling quality and atmosphere by having speaking-like melodies and more. Familiar from films such as Somewhere In Time, The Story of Three Loves, and Groundhog Day and even extending to narrative ballets performed worldwide, the Rhapsody was and is well-perceived. In my analysis, I will highlight key moments of contrast and mood within the Rhapsody by focusing on Variation 18, which truly shows the Romantic strengths of Rachmaninoff's music and the authenticity of the period even though this work was developed in the Modern period. I will also show the relationship to Niccolò Paganini's 24 Caprices. Furthermore, this presentation will capture how and why this rhapsody is widely regarded as one of Rachmaninoff's most enduring and frequently performed contributions to music as a whole.

The Effects of IPV in Pakistani women: Narrative Review.

Mr. Isaac Asante[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Intimate partner violence (IPV) in developing countries is a major public health concern. According to the World Health Organization (WHO, 2018), about 53 million women in the Eastern Mediterranean region have been subjected to IPV. IPV may result in severe physical consequences such as mild traumatic brain injury (mTBI) (Valera, 2019). While studies have investigated the health effects of IPV, little is known about the negative effects of IPV-related mTBI in Pakistani women. We empirically studied the presence and effects of physical ramifications of IPV in Pakistani women. We also reviewed studies on IPV-related TBI in the United States and other countries.
Three databases were searched: Academic Search Complete, PubMed, and Web of Science. We reviewed any relevant articles using the PICO (Population, Intervention, Comparison, and Outcome) framework. The following keywords were used, mild traumatic brain injury, intimate partner violence, and Pakistani women, intimate partner violence, mTBI, IPV, repeat mTBI and brain injury, concussion, physical IPV.
Eight studies on IPV in Pakistani women and five studies on IPV-related mTBI were reviewed (N=13). Studies on IPV in Pakistan reported that between 34% to 80% of Pakistani women experienced physical IPV (Ali & Bustamante-Gavino, 2007, Ali et al., 2011, Fikree & Bhatti, 1999). Four studies on IPV in Pakistani women reported behaviors of physical IPV, which included beating, slapping, pulling hair, and beating perpetrated by a current or former spouse (Ali & Bustamante-Gavino, 2007, Ali et al., 2011, Ali et al.,2014, Fikree &

Bhatti, 1999). Additionally, studies on IPV-related mTBI found cognitive impairments in survivors of IPV (Valera et al., 2003, Corrigan, 2003., Wong, et al.,2020).
The prevalence of physical IPV in Pakistani women continues to be a major public health concern. Understanding physical IPV in Pakistan could help researchers and healthcare workers in Pakistan detect the presence of IPV-related physical consequences, particularly mTBI in Pakistani women. More education, research, and awareness are needed to understand IPV and mTBI in this population.

Cybersecurity: Psychology, Technology, and Society.

Isaak Babaev[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Previous research surveys suggested that counseling is beneficial to those who cyberbully and the victims. This paper will propose a mandatory scheme for online group counseling or private one-on-one counseling sessions with a clinical social worker, psychologist, or psychiatrist as part of social media platforms' requirements for users that are flagged and otherwise detected as involved in cyberbullying. The paper will also discuss methods of blocking evasion of these requirements. By keeping tags of involved people's names and verified snapshots of the individual's face using computer cameras, the inflammatory posts detected by the Artificial Intelligence detection system, moderators, or social media platform bystanders/victims flagging the comment, will be accurately linked to the offender. My discussion will explore the ideal nature of social media platforms in identifying cyberbullying, which will also help prevent traditional bullying when social media platforms establish collaboration between its users and the schools that the involved children attend. Our proposed method will facilitate the development of effective school cyberbullying policies, educate parents and students, develop peer helper programs, and provide responsive services, including reporting and counseling opportunities. Along with mobilizing social media bystander support, the involved therapy of both the bullies and the victims will minimize bullying and cyberbullying incidents while promoting resilience in similar future situations.
Presented by Anishka Mendez, Student, SUNY Canton

Museum Exhibition Consumerism Critique Through the Lense of Burke's Pentad and Ratios

Hannah Barden[1]
[1]SUNY Fredonia

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Much of the existing rhetorical literature that employs Burke's dramatistic theory of rhetoric focuses on ratios. Ratios refer to areas of overlap between tenets of the pentad including act, agent, scene, agency, and purpose. A rhetorical act refers to an intentional action performed with the goal of persuasion. A rhetorical act can be analyzed using Burke's theory in that the critic can examine how the tenets converge and diverge. This paper examines a consumerism-critiquing rhetorical act—a 2011 museum exhibit created by social-commentary artist Miguel Januário—by applying dramatistic theory. This analysis, however, focuses more heavily on the dynamics of power within pentad tenets themselves. Ratios are discussed, but in a more supportive role, as they shed light on what causes the tenet-internal dynamics. It is found that, while there are many relevant elements encompassed by a given tenet, each tenet contains one element which plays a dominant role in the rhetorical act. These dominant elements lend power to the act. Such an analysis is useful because it presents a unique tenet-oriented application of Burke's classic theory of

rhetoric. This perspective reveals another angle from which to gain insight into the persuasive power of rhetorical acts. Being able to identify rhetorical dynamics is an important step when studying a rhetorical act, as well as an advantageous step to consider during the creation of an act. Harnessing the power available in a given situation is arguably easier and more effective when that availability is known. In this way, the theoretical development presented in this paper should interest both scholars and activists.

The Promise of Basketball in Urban Communities

Darrell Barley[1]
[1]SUNY Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The goal of this project is to explore the representation of basketball in urban communities in documentary films. I will be comparing and contrasting two observational documentaries. The first is Jonathan Hock's 2005 film, Through the Fire . This documentary takes place in Coney Island, New York and follows Sebastian Telfair, an athletic prodigy struggling to decide between becoming a professional basketball player or going to college. Through the Fire reveals Sebastian's many hardships and accomplishments. The second documentary is the classic film Hoop Dreams (Steve James, 1988), which takes place in the 1980s in the rough streets of Chicago. This documentary addresses the daily life of William Gates and Arthur Agee, two talented young players who have big dreams of becoming professional basketball players, despite coming from poverty and broken homes. This research project will analyze how the films depict class issues faced by urban youth in America, and the authenticity of opportunities basketball seems to present to them. Basketball has been looked upon as a solution to better the socio-economic status of young black athletes. Research has shown that basketball promises the opportunity of socio-economic upward mobility, but does not always deliver.

Understanding Depressive Symptomatology Across Cultures: The Role of Self-Stigma and Help-Seeking Barriers

Ms. Olivia Bell[1], Francesca Giaquinto[1], Connor Rohan[1]
[1]Buffalo State College

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Mental health stigma is a common deterrent to individuals receiving services or support for psychological disorders. The present study examines the relationship between mental health self-stigma and help-seeking attitudes, along with the subsequent correlation with depression symptomatology in minority cultures. Mental health stigma has been defined as negative stereotypes that are adopted by communities to define mental illness, while help-seeking behavior is when one seeks professional help for symptoms associated with a mental illness. Prior research has found notable differences in perceptions regarding mental health cross-culturally. In a cross-cultural mental health stigma analysis, negative community views regarding mental health led to negative help-seeking attitudes. When an individual experiences both self-stigma and racial stigma, this is referred to as "double stigma," which is associated with decreased help-seeking, even when the individual is coping with a mental disorder. The compounding barriers to treatment and associated outcomes within minority populations have not been fully explored. We hypothesize that mental health self-stigma and negative help-seeking attitudes mediate the relationship between minority cultures and depression symptomatology.
Survey data is being collected at Buffalo State College via Qualtrics, which is an urban college campus where we expect a diverse sample that will allow us to address cultural differences. Participants are asked to

initially provide basic demographic information such as gender and race. The Center for Epidemiological Studies Depression Scale was included to assess for depressive symptoms. The Internalized Stigma of Mental Illness Scale and the Self-Stigma of Mental Illness Scale were included to assess self-stigma and the Self-Stigma of Seeking Help Scale was included to assess help-seeking barriers. Data collection is ongoing in the current study. Analyses will be conducted prior to the conference. Upon conclusion of data collection, a mediation model using the PROCESS macro in SPSS will be used to analyze our data.

Homelessness Defined by Lack of Housing

Brianni Bennett[1]
[1]SUNY Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The question that is being posed is, "what does lack of housing and homelessness look like in Buffalo?". Within the United States, there are many Americans struggling with excessive housing fees like paying rent, mortgages or even electric bills. They are subjected to choosing between everyday necessities or residency. Though there are organizations which support global housing issues, a lot of Americans are homeless and on the verge of poverty. By using photo voice, this allows me to take this topic and gain insight into statistical aspects of housing issues within Buffalo. To further my research I plan on taking photos around Buffalo to prove that they support the local statistics, and about the issue as a whole. From this, I expect to find areas experiencing housing issues in buffalo with similarities to those of other countries. Furthermore, I expect to find whether there are organizations in Buffalo which support Americans struggling with housing issues. With these statistics, hopefully pull attention to the issue of housing and homelessness that may not be globally recognized. I hope to raise awareness through this research project and give people information about how they can get involved.

Cyberbrain Space: From 1980s America and Japan to Global Phenomenon

Alexandra Bond[1]
[1]Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

In the early 1980s, science fiction literature in America was turning away from the New Wave movement that had defined the genre in the 1960s and 1970s. At the same time, Japan in the 1980s saw cyberpunk films and manga emerge from the rising punk music subculture. Both genres focus on dystopian capitalistic hellscapes and increasing dependence on technology: how these might tear away at a person's self-identity, and how the fringes of society might disproportionately suffer. Both genres are, in modern scholarship, referred to as "cyberpunk." This project will examine the origins of both cyberpunk scenes. I will outline the circumstances that formed the foundation of both Japanese and American cyberpunk and demonstrate how creators in these genres addressed similar anxieties with different cultural perspectives. Finally, I will examine how the Japanese translation of Neuromancer by Hisashi Kuroma and the English-language distribution of Akira by Streamline Pictures in the late 1980s influenced the subgenres of the countries they were introduced to, paving the way for a global cyberpunk. My poster will visualize the concurrent timelines of cyberpunk in America and Japan, providing visual reference for how works from each scene influenced subsequent works, and how the two subgenres merged into the 1990s and beyond.

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What does poverty and transport look like in the city of Buffalo?

Shaniya Boyd[1]
[1]*SUNY Buffalo State*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

When reading the book "Broke in America" by Joanne Goldblum and Colleen Shaddox, the topic of transportation intrigued me . There is an extraordinary amount of connections between the systems of transportation and poverty not only in Buffalo but all around the country. Since I am now living in Buffalo it interests me to see how this issue affects the dynamics of poverty in my area. "But in much of the United States, public transit is seen as the way poor folks get around—and so investments in it fall far short of what's needed to provide reliable, convenient service." This quote was the reason my topic stood out to me because transportation might seem like a general need for some but for others it is a luxury due to how much their life revolves around it .
To obtain information for my project I will be using the Photovoice method . The purpose of PhotoVoice is directed to making a social change towards issues captured in photos based in an individual's community / visiting area. Based on using the photos I have from the Photovoice and other research, I expect the connection between transportation and poverty to be shown in the Buffalo area. Considering the generalization of this issue around the country I anticipated being able to see how this issue affects poverty easily. However, upon completing the project I expect it to have been slightly more difficult in exemplifying the correlation of poverty and transport because although issues are prevalent in society it is not always easy to see them first hand . Nevertheless, I expect to find research and pictures that show how Buffalo can possibly improve poverty with fixing transportation throughout the City in various ways . In terms of my project raising awareness I hope that people in the community see how much transportation can affect the structure of society causing or worsening poverty . While knowing how essential transport is I hope to open eyes on why and how issues within transportation in Buffalo should be fixed .

A Preliminary Analysis of Ancient Human Mitochondrial DNA Lineages From China

Katherine Braico[1], Julia Fitzgerald[1], Mia Montes[1], Ashwin Sriskanthan[1]
[1]*Binghamton University*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The availability of ancient DNA, genetic data acquired from ancient biological remains, provides novel insights into prehistoric and historic demographic events. In this study, we utilized previously published ancient mitochondrial DNA (mtDNA) sequences of 888 individuals representing paleolithic, Neolithic, and Bronze Age China. These Ancient mtDNA sequences were organized into four time periods and two major regions (Xinjiang and "Southeast China"). To investigate the phylogenetic relationship between the ancient individuals, their mtDNA haplogroups were determined using Haplogrep 2. MtDNA sequences were then aligned (MAFFT) and edited (MEGA) before median-joining networks were constructed using Network 10. While East Asian mtDNA haplogroups were prevalent across ancient China throughout the studied period, West Eurasian haplogroups (H, HV, I, W, J, T, K, U, M) were present only in the Xinjiang region, which indicates a clear influence from West Asia, likely resulted from the migration of Indo-Europeans into this region. Furthermore, some West Eurasian haplogroups (J and T) were present in Xinjiang before 4,000 BP and after 3,000 BP but were not represented during the second millennium BCE. Results of haplogroups D and M network analysis suggest the possibility of a connection between ancient Xinjiang and Southeast

China via migrations or shared ancestry. Specifically, within haplogroup D4j3a, a Southeast China individual represented a branch descended from an ancient Xinjiang lineage of the same period. As more mtDNA data from ancient China is published, a large-scale analysis with the inclusion of all available ancient and contemporary mtDNA data can transform our understanding of the dispersal and evolution of mtDNA lineages in China and the surrounding regions.

Using Machine Learning to Describe Band Structure of Nanomaterials

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[1]SUNY Polytechnic Institute

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

When materials are nanoscaled or nanostructured, the complexity and difficulty of describing the band structure becomes enhanced. In order to accelerate the speed of new materials development, many efforts have been made by researchers, especially for alloyed semiconductors with non-parabolic band edges and strong coupling between the conduction band and the valence band, e.g. the L-point in the first Brillouin zone of Bi1-xSbx materials. In this present work, we will use different regressors of machine learning method to predict the direct-band gap at this point, including vector machines, tree machines, Gaussian process machines, as well as artificial neural networks, by mapping from the feature space of multiple nanomaterials parameters to the target value. The results show that a goodness-of-fit of ~0.99 can be achieved.

Multicomponent Caloric Materials for Refrigeration

Jacob Casey[1], Mr. Chris Hanley[1], Mr. Joseph O'Connell[1], Mr. Noah Kramer[1], Ms. Cora Kubik[1], Dr. Arjun Pathak[1]
[1]Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The magnetocaloric effect (MCE) is a relationship between the thermodynamic and magnetic properties of materials where the application or removal of an external magnetic field changes the temperature of the material. Researching this phenomenon could lead to a revolution in technology and reduce the cost of energy in certain industries such as refrigeration or climate control [Zhang et al., Appl. Phys. Lett. 105 242403 (2014)]. One of the common goals in this research is to develop cheaper, durable, earth-abundant materials which exhibit a large MCE at a relatively lower magnetic field strength. Magnetocaloric materials-based refrigeration units are promising candidates due to their cooling efficiency, environmental friendliness, reliability, portability, cost-effectiveness, and long cyclic operation stability. Among such materials, a family of MnTX (T = Ni, Co; X = p-block elements) compounds have received considerable attention due to their potential applications [Pathak et al. Applied Physics Letters 90 (26), 262504 (2007)]. In this presentation, we discuss the synthesis and characterization of MnTX-based multi-component materials that exhibit a coupled structural and magnetic phase transition around room temperature. We have studied a partial substitution of Fe with Ni on the structural, magnetic, and magnetocaloric properties of a series of Mn0.5Fe0.5-xNi1+xSi0.94Al0.06 compounds. For all values of x, the materials exhibited a first-order magneto-structural phase transition from a low-temperature ferromagnetic orthorhombic phase to a high-temperature paramagnetic hexagonal phase. The transitions were accompanied by large magnetocaloric effects. The maximum magnetic entropy changes of -22 J kg-1K-1 and -57 J kg-1K-1 for field changes of 2 T and 5 T, respectively, have been realized for x = 0.1 at T = 322 K. The large magnetocaloric effect associated with the system's constituent cheap and non-toxic elements make it a potential candidate for application as a magnetic refrigerant.

The Costs and Benefits of the "Hyper Brain": How Intelligence, Anxiety, Overthinking, and Rumination Interact

Ms. Quinn Ceilly[1]
[1]*State University of New York at Oswego*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Stress refers to a maladaptive state that generates acute or chronic physical, psychological, or behavioral disturbances, and it is influenced by an overstimulation of the sympathetic nervous system. While stress can serve as a motivating factor in some instances, intense and frequent long-term stress responses can produce severe physiological and mental health complications. The present study investigates short-term stress responses among 18- to 26-year-old college students to assess relationships between intelligence, anxiety, overthinking, and rumination. Previous works examining adverse symptoms of stress in individuals of high intelligence show inconsistent results and few evaluate overthinking tendencies, which together incentivize further investigation. This experiment incorporates physiological measures during modest stressors coupled with self-report measures of anxiety, overthinking, and rumination. This investigation is driven by three primary experimental hypotheses: (1) Higher intelligence (IQ scores) will be associated with greater overthinking and rumination tendencies; (2) Individuals who tend to overthink will show more prolonged cardiac responses to these stressors and take longer for heart rate to return to baseline; (3) Individuals who score higher on the IQ tasks will have higher rumination/overthinking scores and report greater anxiety. The procedure consists of three tasks: a social stress in which participants prepare a 5-minute speech within a constrained time frame, an intelligence test that measures IQ, and a mirror-tracing frustration task. Additionally, four questionnaires separately measure somatic anxiety, cognitive anxiety, overthinking tendency, and ruminative tendency. Cardiac data are collected (i.e., heart rate, heart rate variability) during selected portions of the procedure with the BIOPAC system to test for physiological responses to stressful and frustrating situations. At its conclusion, a 7-minute mindfulness exercise serves to return participants to baseline. Findings may clarify the contributions of overthinking and rumination to anxiety and facilitate more specialized treatments for individuals who experience overthinking, rumination, and anxiety in the management of responses to stress. While 27 individuals have participated in this experiment to date (5 as pilot studies), data collection will continue and initial analysis will be completed.

Optimizations in the incorporation of Anap, a fluorescent amino acid, to observe β-tubulin.

Mr. Zirong Chen[1], Mr. Ryan Hoskins[1], Mr. Ben Weisman[1], Ms. Linda Cheung[1], Dr. Susan Flynn[1]
[1]*SUNY-Binghamton University*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

For decades, fluorescent proteins (FPs) have been used to label proteins, allowing for the monitoring of protein behavior and localization. However, FPs are relatively large in size, and have the potential to disturb intimate protein-protein interactions and pathways. This issue can be potentially alleviated with the application of a novel technique: the incorporation of fluorescent non-canonical amino acids (ncAAs) directly into proteins of interest. The process of incorporation utilizes genetic code expansion, where a stop codon is rewritten to encode for a ncAA. Here we explore this newer approach to labeling proteins with fluorescent ncAA 3-(6-acetylnaphthalen-2ylamino)-2- aminopropanoic acid (Anap). We find that Anap can be successfully incorporated into β-tubulin in mammalian systems, which can allow for an alternative method to observe microtubule dynamics.

Poverty, Property, and Foreclosures: Buffalo, NY

Mr. Dante Cracchiola[1]
[1]*SUNY Buffalo State*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

What causes someone to get evicted, or foreclose on a house? In the fourth quarter of 2021, there was over 55 thousand foreclosures across the US, 82% higher than the number of foreclosures in the fourth quarter of 2020, but why, and what does this look like here, in Buffalo? How does it compare to the rest of the US? In order for me to find a trend among the foreclosures, here, in Buffalo NY, I will be utilizing the PhotoVoice research method. By going out into the city and observing the hundreds of foreclosed houses around Buffalo, therefore I can create a narrative about what may be the driving factor behind the mass foreclosures. Buffalo has a very diverse population, and also is one of the poorest cities in America, which results in a lot of working class citizens, who rely on their hands to put food on their table each day. Also, with the pandemic; a lot of workers were laid off or were put out of work for some outside reason, which could play a major factor in the massive rise in foreclosures across the US. My overall intention of this project will be to create a photo-voice narrative of people who have foreclosed on a house, which may result them in being homeless.

Habitat Fragmentation Predicts Cellular Immunity of a Leaf-nosed Bat, Sturnira parvidens

Ms. Isabella DeAnglis[1]
[1]*SUNY ESF*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Monitoring wildlife populations in the Neotropics is essential as increased agricultural expansion fragments forests, threatening many species. Specifically, loss of habitat can negatively affect an individual's physiological condition, resulting in immunodeficiency and increased morbidity. We sought to determine how fragmentation is impacting the immunity of little yellow-shouldered Mesoamerican bats (Sturnira parvidens) inhabiting the Orange Walk District of Belize. We compared the estimated total white blood cell (TWBC) counts and leukocyte differentials of 38 bats captured in either locally fragmented forest or continuous forest. Bats in the fragmented forest had approximately twice the TWBC count ($W=373.50$, $P=0.004$), total neutrophil count ($W=367.50$, $P=0.002$), and total monocyte count ($W=386.00$, $P=0.014$) compared to individuals in the continuous forest. Individuals in fragmented forests may have increased exposure to pathogens or elevated glucocorticoid levels from the stressors related to fragmentation. Bats in the fragmented forest also had double the calculated total lymphocyte count ($W=389.00$, $P=0.018$) compared to bats in the continuous forest, suggesting that bats may invest more in adaptive immunity in fragmented forests where parasite loads may be higher. Overall, populations of Sturnira parvidens in locally fragmented landscapes may invest in immunity differently than those living in continuous forests, and may be more susceptible to parasites and pathogens, and thus population declines. We recommend conducting further studies on how fragmentation affects the infection prevalence and glucocorticoid levels of these bats for informed management and conservation of this species. This work was funded by the National Science Foundation (IOS 1656551, DEB 1601052), the ARCS Foundation, and the American Museum of Natural History (Theodore Roosevelt Memorial Fund, Taxonomic Mammalogy Fund).

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Comorbidity Analysis of Heart Failure Readmissions Before and After HRRP Introduction

Daniel Deslippe[1]
[1]*The University at Buffalo*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Background: The Hospital Readmissions Reduction Program (HRRP) sought to decrease readmissions of patients with 4 of Medicare's most common conditions: Acute Myocardial Infarction (AMI), Chronic Obstructive Pulmonary Disease (COPD), Heart failure, and Pneumonia by penalizing hospitals for preventable readmissions of these conditions. Evidence is inconclusive as to the effectiveness of the penalty program. The objective of this exploratory study is to understand the impact of Heart Failure and its prevalent comorbidities on readmission rates.
Methods: We used the 2010 and 2015 National Readmissions Data (NRD) from the Healthcare Cost Utilization Project (HCUP) to get a before and after picture following the introduction of the HRRP in 2013. We created a dataset of index events to subset our target population in R by using the KeyNRD variable to track rows across dataframes. Next we created a dataframe of the readmissions cases, and calculated the days between each subsequent readmission, and finally flagged all the target codes for heart failure and its subtype (AMI, Arrhythmia, CA, ANG). Next we identified and flagged for common comorbidities such as COPD, Liver Failure, Dementia and others. After building that dataset we were able to gather descriptive statistics and perform advanced modeling methods including survival analysis and multivariate logistic regressions.
Results: There are around 3 million incidences of heart failure from the original 13 million rows. The inclusion criteria is any of the HF subtypes being present in any of the 18 diagnoses columns. Preliminary results from 2010 dataset confirm a large incidence of cases where there is comorbidity of HF subtypes with COPD and a large percentage of readmissions. For patients with Cardiac Arrest, AMI, and COPD diagnoses readmissions made up nearly 10% of cases. For patients with arrhythmia and COPD readmissions made up >18% of cases. Full analysis for full suite of comorbids and results of advanced modeling methods forthcoming.

Spatial analysis of new potential drug and needle disposal sites.

Ryann Dubel[1]
[1]*Buffalo, State*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

There is a possibility that there are many correlations between disposal sights for drugs and human interactions that happen in the Buffalo, New York area. These disposal sites are placed strategically in order to give communities a safe place to dispose of used needles, and drugs that allow for these things not to get into the wrong hands. Used needles being taken off the streets will lower accidental pricks of said needles that could be carrying disease or drugs. With the drugs being disposed of, illegal drugs are not always the ones that need to be disposed of; it could be the disposal of old medication that is outdated, or not needed anymore.
This disposal is needed to keep the communities safe. Diseases and virus's that are transferred by bodily fluids needles give a higher chance of contracting these things when used needles are around. A more well known virus that could illustrate these correlations between disposal sights and new infections is HIV that is very well documented due to its severity. There are other examples that could be tested for correlations to

disposal sites like accidental drug overdoses of prescribed medications, drug overdose from getting pricked by used needles, and more. With these possible occurrences from having drugs and used needles it is important to see where new disposal sites are needed from analyzing the data.

Decoding nuclear function of mitochondrial enzymes

Nadya Elhalawany[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Acetyl-CoA is an essential metabolite required for various cellular processes including energy production, fatty acid synthesis, and gene expression. Mitochondria is the major organelle that produces acetyl-CoA, but the metabolite cannot permeate the mitochondrial membrane. In the nucleus, acetyl-CoA is essential for regulating histone acetylation and transcription. However, the molecular mechanisms that regulate the nuclear acetyl-CoA pool remain poorly defined. Through cellular fractionation and Western blot analysis, we investigated the presence of numerous mitochondrial enzymes in the cytosol, nucleus, and mitochondria. We have discovered mitochondrial TCA cycle enzymes Aconitase 2 (ACO2), Citrate Synthase (CS), and Isocitrate dehydrogenase type 2 (IDH2) that synthesize citrate used for acetyl-CoA production are present in the nucleus. Through acid-histone extraction and Western blot analysis, we found that the histone acetylation levels are altered in the absence of these enzymes. Histone modifications lead to the chromatin opening or closing and thereby induce changes in gene expression. These findings reveal that specific mitochondrial enzymes can localize into the nucleus to regulate the nuclear specific acetyl-CoA pool required for gene transcription. Our future goal is to investigate the molecular signal that drives the translocation of these enzymes into the nucleus and determine their impact on gene transcription.

Docking of novel flavonoids with beta-ketoacyl acyl carrier protein synthases of Staphylococcus aureus and Escheria coli.

Tasiyah Essop[1]
[1]Purchase College

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The emergence of antibiotic-resistant bacteria is increasing rapidly across the globe. With more bacterial strains expressing resistance to antibiotics, there is an urgent need to obtain new methods of treating these bacterial infections. A promising target for developing alternate therapeutic agents is the inhibition of fatty acid synthesis, particularly targeting the beta-ketoacyl acyl carrier protein synthases, KAS I, II, and III. Flavonoids are compounds extracted from plants that have been reported to be successful inhibitors of KAS I and III in E. coli as well as KAS III in S. aureus. Flavonoids that have distinct 4'-OH and 7-OH positioned substituents were reported to display the greatest antimicrobial activity against various MRSA strains in in vitro studies. This study used AutoDock Vina to perform docking studies, analyzing the binding affinities of five flavanoids with 4'-OH and 7-OH positioned substituents (Hesperitin, Steppogenin, Genistein, Butin, and Homoeriodictyol) against the KAS III enzymes of two highly resistant bacterial species, S. aureus and E. coli. When docking the flavonoids with the crystal structure of E. coli KAS III, Genistein was found to have the strongest docking score of -8.0, as well as forming hydrogen bonding with the amino acid His244. The presence of hydrogen bond formation in the active site indicates potential inhibition of the enzyme, suggesting need for further studies to assess the inhibition of beta-keto-acyl carrier synthase III. Understanding the interactions between possible inhibitors with the enzyme may improve drug design and development for treating bacterial infections.

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Supportive Practices for Preschool Students Entering Kindergarten in 2021

Sofia Fanizzi[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Does kindergarten entrance look different in a mid/post pandemic world? This research is to better understand how changes due to the Covid-19 pandemic have affected preparedness for kindergarten. This research project observed students age-eligible for the town's central school district kindergarten program who attended the preschool classrooms at a community childcare center. The results are based on observations and organic interactions with the classrooms and preschoolers along with questions asked of the teachers and parents. The main focus of the work is looking at what is happening in preschool classrooms to bridge the expected gap between preschool and kindergarten due to the pandemic. The preschool work, observation, and observed assessments show that most of the children are prepared for kindergarten entrance. The study also concludes that a balance is needed between high academic experience, experimental opportunities, and play. In looking at the pandemic crosswalk, the preschool changes have been minimal.

Knight Rider: Reflecting Fears and Anxieties on the American Small Screen during the 1980s.

Mr. Michael Fisher[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

In the 60s cinema entered what critics refer to as the golden age of American Western media. With films such as A Fistful of Dollars, For a Few Dollars More, The Good the Bad and the Ugly and Once Upon a Time in the West all being released to critical praise during this period. The western genre would be greatly influenced by these films in particular the mold of the male lead created by these films. "The Man with No Name" portrayed by Clint Eastwood in A Fistful of Dollars, For a Few Dollars More and The Good the Bad and the Ugly. Along with "Harmonica" played by Charles Bronson in Once Upon a Time in the West. The lead was traditionally portrayed as the following: A handsome man who's name and past are unknown, a man who despite a callous, and at times misanthropic personality, still fights for justice. Knight Rider was a show about a man without a name. Betrayed and left for dead the man is given a new identity as Michael Knight, a crusader for justice, fighting those who would place themselves above the law. At first glance this show seems simple enough but when observed through a more discerning lens the deeper themes of the show are laid open for the viewer. The lens of western genre is vital in understanding how Knight Rider was a reflection of the time. By observing where the show breaks from tradition the deeper anxieties of the time are revealed. Through close analysis of the TV series this research demonstrates similarities and differences between Knight Rider and a traditional western, this includes musical styles, technological and criminal anxieties and questions about the role of government. In conclusion this study will highlight popular fears and anxieties of the 80s.

Towards a declarative support of function APIs

Mr. Gustavo Frances[1], Mohammed Uwais[1]
[1]*SUNY College at Old Westbury*

With the widespread availability of data and API libraries for complex tasks such as image, natural language processing, it becomes feasible to build powerful applications. While Python packages provide an extensive library for these APIs, manually writing these application workflows that consume and/or invoke is a cumbersome task. This is mainly due to (1) the need to handle data with heterogeneous structures, (2) the tight coupling function calls provided by the APIs, including the API versions, parameter types, and error handling, and (3) user authentication, and call rate limits. Optimizing such workflows is challenging, due to the arbitrary cost model and inconspicuous relations among these functions. To this end, we are proposing a declarative approach to hide these details from users and allow for optimization and reduce redundant calls.

The architecture of our proposed system consists of the following main components: 1) parser, 2) optimizer, 3) code generator, 4) executer, 5) Cache manager, and 6) API definitions: define function name, input parameters, output structure and if it can be cached, side effects, dependencies between functions. Errors can be non-deterministic (may succeed if retried), or deterministic. Functions can be used as either: data sources (acting like a relational table) with no input parameters, or as a user defined function, processing input data. We maintain call dependency: functions have to be called in a specific order and result dependency: the output of a function is a superset of another. We assume flexible schemas; ignoring missing attributes and flattening nested structures.

When a user would type a SQL query, our framework would generate and execute an equivalent Python script. The parser would generate the query plan consisting of (a) traditional relational operators such as scan, join, and (b) API function calls. Based on our cost estimation and statistics (if any), we generate an optimized plan. Then, the plan is extended to handle nondeterministic errors and amortize function initialization and model loading. Finally, we convert this plan into a python script. Users can inspect generated scripts and modify them.

A Centralized-Digital Database for Propithecus edwardsi: Impact on Conservation and Biodiversity Science

Mr. Max Freitas[1], **Dillon Pekoff[1]**, **Julia Lofaro[1]**, Michael Bledsoe[1]
[1]Stony Brook University

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Propithecus edwardsi, Milne-Edwards's sifaka, is a species of lemur in the family Indriidae. It is large bodied, diurnal, endemic to the eastern coastal rainforests of Madagascar, and lives in female dominated groups. P. edwardsi is critically endangered due to habitat destruction, and human hunting for bushmeat. Here we report for the first time, wild P. edwardsi behavior data that has been connected with morphological data, including skeletal information and tooth wear. This database allows for comparisons to be made between behavioral, ecological and developmental data over time in wild P. edwardsi. The data compiled consists of 137 sequential captures following the same individuals for 30 years at Ranomafana National Park, enabling us to track the lives of the individuals extensively. The data includes biometrics, 75 sets of teeth molds, parasite data, genealogy, behavioral data, and skeletal data for 7 individuals. Long-term digital databases have utility for conservation studies and scientific advancements on biodiversity. The creation of the database allows for comparative studies including behavior, genomics, anatomy, and ecology. P. edwardsi's main form of locomotion is vertical clinging and leaping, but it also exhibits vertical climbing and bipedal locomotion. Therefore, this database on P. edwardsi will provide a useful comparison to large bodied vertical clingers and leapers, brachiators, and arboreal orthograde primates. A centralized-digital database for P. edwardsi will have a consequential impact on primatology and comparative anatomical and behavioral studies of primates.

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The Links Between Nike and Jordans to Cultural Identity

Dante Fung[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

In 1984 Nike took a chance on an unproven NBA Rookie and decision changed the trajectory of footwear to this day. This partnership would revolutionize the sneaker world and etch its place in not only American culture but globally. From popular advertising campaigns to clever marketing strategies Nike footwear became a cultural phenomenon. Nike sold the belief that through buying and wearing their sneakers that you could be "Like Mike" and emulate his supernatural performances on the hardwood. This led to many buying into the hype, and scrounging up whatever funds they could to be "Like Mike". Prior to the signing of Jordan, Adidas and Converse dominated the sneaker market while Nike was not a major player and struggling to stay afloat. Within the first year of sales the Air Jordan 1 grossed $100 million in sales, and following this Nike began to expand their influence along with targeting different audiences. What initially drew in consumers was that Nike made basketball shoes that were now fashionable and that could be worn for purposes other than the sport. Like that streetwear culture became permanently linked with Nike's sneakers. This is because with every new release Nike implement newer innovative designs/technology opposed to the stagnant and archaic methods of their rivals. Nike appealed to the masses to the point coast to coast, state to state, everyone everywhere was rocking the swoosh. However nothing had a bigger influence on the expansion of Nike other than hip hop which soon made Nike the go-to sneaker in urban cities across the country. This presentation will show the impact of Nike and Jordan sneakers on identity and American culture. I will achieve this by dissecting Nike's numerous ad campaigns, Jordan's commercials with Spike Lee, and articles from the 1980s which documented the meteoric rise of sneaker culture.

The Effect of Varying Membrane Fluidity on the Binding Affinity of LL-37

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[1]*Purchase College*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Antibiotic resistance is a prominent issue, and the number of bacterial strains with resistance to conventional antibiotics are rising readily. Antimicrobial peptides (AMPs) are a promising alternative to antibiotics and exhibit antimicrobial activity against bacteria, fungi, and viruses. While antibiotics target bacteria through a specific mechanism, AMPs use electrostatics and differences in membrane composition to target bacteria, which is known as AMP selectivity. In this study, the effects of varying membrane fluidity on the binding affinity of the human AMP LL-37 to the membrane are investigated. Large unilamellar vesicles (LUVs) varying in mol% cholesterol, saturation, and tail length were prepared. All LUVs have a diameter of 100 nm and a 3:1 mole ratio of PC (Zwitterionic) and PG (negative) head groups. The negative PG lipids promote the binding of the positively charged, FAM-labeled LL-37 to the membrane, and fluorescence anisotropy was used to measure this binding. Anisotropy was also used to quantify the fluidity of different membranes via DPH, a fluorescent dye that intercalates into lipid bilayer. The effect of cholesterol was studied using LUVs with 20, 30, and 40 mol% cholesterol, where increasing mol% cholesterol correlates with decreasing fluidity. The effect of tail length was investigated using lipids with fatty acids containing 14, 16, and 18 carbons, where increased tail length correlates with lower fluidity. The effect of saturation was studied using lipids with zero, one, and two double bonds in their fatty acids, where increased saturation correlates with decreased fluidity. The binding affinity of LL-37 to the membrane generally increased with an increasing saturation, decreasing mol% cholesterol, and increasing tail length.

Non-cooperative binding was mostly observed, especially in LUVs with 30 mol% cholesterol (a point of interest). It highlights the rigidity of membranes with cholesterol, which makes it harder for the LL-37 to bind at other sites on the membrane. The mechanisms underlying AMP selectivity are not fully clear and include more than just electrostatics. Understanding the effect of physical membrane characteristics (like fluidity) can explain what directs AMP selectivity towards bacteria and predict how AMPs will target microbes that evolve new physical ways of resistance.

Synthesis and characterization of magnetic topological quantum materials

Mr. Christopher Hanley[1], **Mr. Jacob Casey[1]**, Mr. Chris Burgio[1], Mr. Joseph O'Connell[2], Mr. Randall Filippone[2], Mr. Noah Kramer[2], Dr. Arjun Pathak[1]
[1]SUNY Buffalo State, Department of Physics, [2]SUNY Buffalo State, Electrical Engineering Technology

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The magnetic topological quantum materials that contain rare earth (RE) atoms are very interesting for both fundamental study and application perspectives in spintronic devices. The physical properties of these materials are distinct from common metals and alloys, and have emerged as an extraordinarily prolific ground of materials science research for high efficient electronic and quantum-phenomena-based devices. One of the examples is kagome materials which become an interesting platform to study the interplay among symmetry, magnetism, topology, and electron correlation. The latest works in REMn6Sn6 have illustrated that this family could be fascinating to investigate various physical phenomena due to large spin-orbit coupling and strong magnetic ordering [Phy. Rev. B, (Letter) 104, L161115 (2021)]. However, high-quality single-crystalline samples are still limited, and detailed study of magnetism and electrical transport is also lacking. Therefore, the understanding of fundamental science and thereby the design of the materials for future quantum computation applications is limited. In the last two years, we have been working on the synthesis of various high-quality single-crystalline magnetic topological materials and investigating their details of magnetic and electronic properties. As an example, in this presentation, we focus on the synthesis of single-crystalline REMn6Sn6 (RE = Er, Ho) materials. We also discuss the magnetic and transport phenomena at various temperatures, magnetic fields, and applied pressure.

Investigating the Correlations Between Illicit ADHD Medication Use and Emotional Health

Courtney Hinkley[1], Julia Horowitz[1], Natalie Yuvanavattana[1], Samantha Bonventre[1], Gabrielle Camillery[1]
[1]Binghamton University

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Prescription stimulants, such as Adderall, are commonly used as long-term treatment for Attention Deficit Hyperactivity Disorder (ADHD). Prolonged benefits seen by individuals with ADHD who have been prescribed Adderall include enhancement in focus, concentration, memory, and other executive functions. Many college students take Adderall illicitly to achieve these desired effects. When Adderall leaves the bloodstream, dopamine levels become extremely low, adversely affecting mood, appetite, and more. Previous studies investigated the comorbidity of mental illnesses with ADHD and the effects of Adderall, but correlations pertaining to mental health and unprescribed Adderall have yet to be studied. Therefore, it is essential to investigate the comorbidities of emotional health with illicit Adderall usage. This study was conducted to explore the relationship between illicit ADHD medication usage and emotional health on college campuses. This study gathered self-reported survey responses from 761 college students regarding experiences with ADHD medication along with diet, mental, emotional and physical health, and prior

knowledge about illicit Adderall usage. Data collection is ongoing and was constructed using Google Forms; the data was examined using Pearson's Correlation Coefficient in SPSS, Version 25.0. Individuals reported feelings of restlessness, nervousness, hopelessness, worthlessness and depression based on a descriptive scale. Data indicated positive correlations between illicit Adderall usage and poor mental health. As Adderall is commonly abused by students not diagnosed with ADHD, minimal evidence exists indicating increased neurocognitive performance, suggesting emotional and mental health are negatively affected. This investigation supports previous conclusions that ADHD medication negatively impacts various emotions and mental health.

Closed Mouths Don't Get Fed.

Kayla Innocent[1]
[1]*Buffalo State*

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My research question is, how do Buffalo residents access food assistance programs? I'm curious to see how these programs are doing in Buffalo. Nearly forty-seven percent of people in Buffalo collect food stamps. Across the United States, many families struggling with poverty rely on food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP). SNAP is an essential part to keep millions of Americans healthy. Many individuals lack adequate knowledge of the distribution of SNAP benefits. SNAP recipient receives benefits monthly, recipients do not receive a one-time payment. Photovoice will be my method of collecting data. Photovoice is participatory research advocacy and a call to action. I will be showing a real-life account of the process of obtaining food stamps. My poster will include information about how many people in Buffalo and Erie County receive food stamps and the process they must go through to access this program. I intend to let people know that it's okay to ask for assistance and seek assistance. In addition to bringing awareness to the issue of poverty and food in Buffalo on my Research Poster, I will also include local resources that someone in poverty could go to get help with food assistance.

Sponges as Biomarkers/Bioremediators: Can E. coli Contaminated Marine Ecosystems be Monitored and Remediated Using the Filtering Capabilities of Sea Sponges?

Ms. Alice Jenks[1], Dr. Amanda Shore[1]
[1]*Farmingdale State College*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Over the past three decades, nearshore marine ecosystems have experienced severe deterioration, due to stressors associated with terrestrial runoff. It has been assumed that offshore marine ecosystems (> 100 km from land) are not impacted significantly by terrestrial runoff. However, recent findings challenging this assumption have detected the presence of two wastewater-derived human pathogens in offshore sponges following flooding generated by Hurricane Harvey (2017). The key question to address now is whether these findings represent the detection of DNA from dead wastewater bacteria or whether living wastewater bacteria are potentially interacting with offshore marine life. The purpose of our experiment is to explore the viability and longevity of Escherichia coli in marine sponges. For this experiment, fragments of the marine sponge Agelas clathrodes were placed in different sea water tanks and were exposed to either: a) no E. coli, b) heat-killed E. coli, and c) live E. coli. Samples of the seawater as well as fragments of the sponges were collected across 6 time intervals. For each sponge sample at each time interval, one subsample was treated with propidium monoazide (PMA) and another subsample was not treated with

PMA. PMA is a chemical that selectively binds to DNA in dead cells and not to DNA in living cells. PMA binding prevents DNA from being measured in down-stream processes, and serves to determine whether a cell in a sample was dead or alive at the time of collection. DNA was extracted from all samples collected and then tested for the presence of E. coli via quantitative PCR detection of the ybbW gene found only in E. coli. We are currently comparing the abundance of E. coli across the time intervals and between PMA and non-PMA containing samples. This comparison will allow us to determine a) how long do living versus dead E. coli cells associate with sponge tissues? and b) how long can E. coli DNA be detected in sponge tissues?. These findings could help make a case for the use of Agelas clathrodes and other marine sponges to remediate bacterial contamination in our oceans.

Incorporation of the fluorescent non-Canonical Amino Acid ANAP into hSERT results in fluorescent labeling in vivo

Mr. Ken Job[1], Mx. Elizabeth McIntosh[1], Mr. Huy Nguyen[1], Ms. Madelyn Stark[1], Dr. Susan Flynn[1]
[1]Binghamton University

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Incorporating fluorescent unnatural amino acids into sequencing is a tool for understanding the structural and functional aspects of proteins within live cells. This is completed through amber suppression which allows for the introduction of a non-canonical, fluorescent amino acid into a protein, which is utilized to monitor these aspects of a protein of choice. A tRNA-tRNA synthetase pair is utilized to suppress an amber codon, and a fluorescent amino acid is implemented within to label the protein of choice. The protein chosen for this study is the human serotonin transporter. This transporter functions by facilitating the movement of serotonin between the synapse and the intracellular space in neurons. hSERT is a transmembrane transporter, indicating that it resides within the cell membrane. The purpose of this study is to incorporate an unnatural amino acid into hSERT, in order to study the transporter's localization in vivo systems.

Childhood Drama: Leonard Bernstein's I Hate Music

Christina King[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Inspired by the works of composers such as Gustav Mahler and Charles Ives, Leonard Bernstein (1918-1990) was one of the best, and most well-known American composers of the 20th Century. He composed the charming song cycle, I Hate Music, which consists of five brief songs sung from the animated perspective of a 10-year-old girl. The cycle (a Liederkreis in German) was written in 1943 specifically for the voice of American mezzo-soprano Jennie Tourel, who first premiered it to conclude her New York recital debut at the end of her program. Bernstein chose Miss Tourel for this cycle because these five songs were composed for the voice of a female adult vocalist performing in a child-like manner. Bernstein even wrote specific directives that were published in the musical: "In the performance of these songs, coyness is to be assiduously avoided. The natural, unforced sweetness of child expressions can never be successfully gilded …" What is so unique about I Hate Music, is that it is one of his least-known pieces that includes primarily conjunct melodies as well as tonal and diatonic harmonies. With these "children's" songs, the performer has a lot of elbow room to incorporate as much musical expression as possible. In my performance practice, I hope to convey this musical expression and why he chose to give it a child-like feel.

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The Effect of the Pyramid Shape on Compost Decomposition and Microbial Growth

Elizabeth Klosko[1]
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SUNY Geneseo's campus has a compost collecting program where students, faculty, and staff can empty their compostable items into bins which are then collected weekly. However, the bins release a putrid scent when opened, deterring SUNY Geneseo community members from using them. A phenomena commonly known as Pyramid Power claims the pyramid shape can help eliminate this problem. Certain scientists theorize and have shown that the pyramid shape, when exactly scaled to the size of the Great Pyramid of Giza, has properties that, once compostable items are put under it, can limit the growth of microorganisms and therefore reduce the foul smell. Using a 3-D printing device, we will scale and print the Great Pyramid of Giza to the size of the current personal and departmental compost buckets. Then, we will test if microorganism growth and foul scent is decreased under the pyramid shape as compared to inside the current compost bucket design.

Phase transition and magnetocaloric properties of La-Fe-Si based alloys

Mr. Noah Kramer[2], Ms. Cora Kubiak[1], Mr. Jacob Casey[1], Mr. Joseph O'Connell[2], Mr. Chris Hanley[1], Dr. Arjun Pathak[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Materials responding strongly to minor variations of external stimuli could revolutionize many of the energy technologies, including magnetic refrigeration, actuation, and sensing. The commercialization of this technology is crucially dependent on the development of suitable magnetic materials that exhibit large magnetocaloric effects (MCE), a phenomenon that causes the cooling or heating of material when placed in an external magnetic field. Giant magnetocaloric effects arise from first-order magnetic phase transformations (FOPTs), hence significant hysteresis and poor thermal transport remain two materials-related basic science challenges that impede the transitioning of the magnetocaloric cooling technologies to the market.
Considering the natural abundance of the constituting elements, LaFe13 xSix-derived compounds are among the most promising materials for energy applications [Fujieda et al. Appl. Phys. Lett. 79, 653 (2001)]. They are, however, extremely brittle and mechanically friable, showing rather low thermal conductivities and measurable irreversibilities, which thus far could not be eliminated completely. Recently, Pathak et. al [Pathak et al. Acta Materialia 215, 117083 (2021)] reported the first-time discovery of a two-phase, naturally formed at the LaFe2Si stoichiometry rather than LaFe13 xSix compound, which has been studied over two decades. LaFe2Si exhibits strongly responsive behaviors without the degradation in properties that can be exploited in weak magnetic fields. However, the functional properties happen rather at low temperatures (below 200K). We are working on this material to further enhance the phase transition temperature and also improve the magnetism of the alloy. In this presentation, we will present the synthesis and characterization of LaFe2-yCoySi. We have prepared LaFe2-yCoySi by making the first pre-alloy of FeCoSi and then added Co and melted several times. The alloys were further homogenized by vacuum suction casting, which prepared 4 to 5 cm long rod with 6mm diameter of sample. The alloy was further sealed into the quartz crucible in the vacuum and heat-treated at 1050°C for 158 hours, and

quenched into water. In this presentation, we discuss the phase transition, magnetic and magnetocaloric properties of both LaFe2Si and LaFe2-yXySi compounds.

Financial Perceptions Among College Students

Abigail Kruse[1], Mikaila Morgan[1], Diana Nguyen[1]
[1]SUNY Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Low socioeconomic status (SES) has been associated with higher levels of anxiety. There was a high prevalence of anxiety in females, the age group of 9-12 years old, and those of lower socioeconomic status. Low SES also corresponds with changes to the physiological stress response. Chronically higher levels of cortisol have been found in children and adolescents in families with low socioeconomic status. It has also been found that higher perceived social support buffers the stress caused by low SES. However, little is known about the relationship between SES, stress, and financial concern of college students. The current study will fill in this gap in the literature by identifying if SES and chronic stress are also related to financial burdens. The inclusion requirements for the participants include being at least 18 years old or older. Participants will be asked to complete an online survey through Qualtrics. Upon the start of the survey, the informed consent form will appear, asking the participant if they consent to the proceeding questionnaires, as well as detailing all inclusion and exclusion criteria. Once consent for participation is obtained, participants will complete the survey which includes questionnaires on demographic information, socioeconomic status, financial self-confidence, financial social comparison, financial well-being, financial strains behaviors, and chronic stress. We predict that there will be a negative correlation between SES and chronic stress or financial strain behaviors among college students. We also expect to see a positive correlation between SES and financial self-confidence, financial well-being, or financial social comparison.

Environmental niche modeling of Fijian invertebrates and future potential distribution in response to climate change and sea level rise

Katherine Lawson[1], **Karina Lang[1]**, Daniella Rabaiotti[2], Dr. Joshua Drew[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

As we learn more about the impacts global climate change and sea level rise will have on coastal communities, it is increasingly important to determine how these communities can begin to prepare for these changes. Oceania, particularly the Fijian archipelago, is a hotspot of biodiversity and therefore we must prioritize actions that can be taken to maintain this diversity. We projected how the distributions of various culturally and biologically important Fijian invertebrate species and marine habitats may shift in the future, using the machine learning algorithm Maximum Entropy Species Distribution Modeling (MaxEnt). Using publicly available data from the Global Biodiversity Information Facility, the climatic niches of nine invertebrate species and three habitats present off the coast of Fiji and eastern Australia were evaluated, and then projected to future potential distributions based on several IPCC climate change scenarios. Our analyses suggest that most of the invertebrate species remain stable across the three scenarios, with changes in rainfall patterns allowing mud crabs (Scylla serrata) and mangroves to expand their ranges into areas that were previously too xeric. Relationships between projected distributions and climate severity were not linear, and some invertebrates, like the antique ark shell (Anadara antiquata) and the edible sea cucumber (Holothuria edulis), lost or gained suitable habitat depending on the scenario. This suggests that

climate change and sea level rise will influence these species in unique ways, so continued data collection and review will be necessary to best inform conservation decisions.

When Social Media Magnifies Women's Trauma

Joana Leamon[1]
[1]SUNY Buffalo State College

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Social Media magnifies and multiplies the trauma of sexual exploitation of women. Published research shows that social media makes it excruciatingly hard for sexual assault victims to recover from their trauma since, with the invention of smart phones, the assault event is increasingly video recorded and posted online. Technology makes victim blaming and shaming nearly impossible to escape. As traumatic, this same technology can create a convincing, but false and slanderous, backstory used against anyone by anyone with modest internet skills and a desire to wreak havoc on another person. After nearly 30 years of the internet's global availability, societies are still learning about its transformative power for better and worse, as for the first time in human history, personal and intimate information, accusation, and trauma can become global and permanent. This research paper will compare and contrast two documentaries: Netizens (2018) directed by Cynthia Lowen; and Audrie and Daisy (2016) directed by Bonni Cohen and Jon Shenk. While Audrie and Daisy illustrates the crushing effect of social media harassment on victims of sexual assault, Netizens investigates tactics for fighting back against harassment by harnessing social media to retaliate against aggressors. Both documentaries use media, including social media, to expose the raw truth of women’s trauma. This truth is often tucked just under the pleasant veneer of our culture, from small town Marysville to metropolitan New York.

Finding genes with outstanding co-expression patterns among organs

Ms. Yanyan Li[1], Ziliang Wang[1], Marie Saitou[2], Prof. Naoki Masuda[1,3]
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Nowadays, genomics data from different cell types of the same individuals are increasingly becoming available, and how we mine information from such multifaceted data (using e.g., machine learning or network analysis) is a challenge. In this study, we analyze how each gene is similarly or differently expressed across pairs of organs, thus constructing a co-expression network of organs (not that of genes) for each gene. Then, we focus on outlier genes in terms of the network structure; in our previous work, we developed and used a similar method to detect outlier structural variants that have evolutionary implications. We collected the data of gene expression amount called the transcripts per kilobase million values from 56200 genes and 30 human organs from the GTEx portal database. For each gene, we calculated the co-expression between each pair of organs as the Pearson correlation coefficient based on the samples that were common to the two organs. The co-expression network constructed in this manner may heavily depend on genes. To quantify the difference across the genes in terms of the structure of the organ-to-organ co-expression network, we applied a principal component analysis to the 56200 networks, where we vectorized the co-expression correlation matrix to define the feature vector for each gene. In the space spanned by the first two principal components, we observe that there are some outlier genes which may be key genes that have specific biological functions or evolutionary implications.

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The Ethical Questions of Documentary

Mr. Sean Mahaney[1]
[1]*Buffalo State*

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The 2021 documentary The Rescue, directed and produced by Elizabeth Chai Vasarhelyi and Jimmy Chin, chronicles the 2018 rescue of a Thai Soccer team and their young coach from the flooded Tham Luan caves. This research project will explore the challenges the filmmakers faced in producing the film and depicting the story of the events several years after they occurred. Since the soccer team had previously sold their story to Netflix, the National Geographic documentary team led by Chai and Chin had to rely on the testimony of other sources. There was resistance from the Thai government to cooperating with the filmmakers as well. There was additionally a lack of footage of the actual rescue, so the team was forced to come up with alternative ways to tell the story visually, including recreating footage of the diving teams who flew in from around the globe to participate in the rescue. The fundamental ethical question of who should own a story will be explored as well as telling a story that is incomplete and with limited perspectives. My thesis is that a documentary should honor the source material of all stories or should not be made at all.

All Humans Deserve Adequate Housing

Nina Miles[1]
[1]*Buffalo State College*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

As I have been researching more in depth about various factors that can result in a housing crisis across the US, I was left wondering how prevalent is the housing crisis here locally in Buffalo, NY? Millions of Americans nationwide are experiencing a housing crisis for numerous reasons. As a result, many are forced to make uncomfortable decisions regarding their living situation that may be detrimental to their own health and safety. As a way of assessing what the housing crisis looks like first hand, I went into the community and conducted the PhotoVoice assessment, which entails you to capture raw footage that exemplifies poverty in your community. During the Photovoice assessment, my main focus remained on inadequate housing. After I took roughly 100 photos, I chose to display the three photos on my poster that I felt best portrayed the housing crisis in Buffalo. My results yielded that Buffalo does in fact have a housing crisis on its hands and the conditions vary depending on the area of the city. I feel as though my experience through this research speaks volume about how prevalent inadequate housing is here in not only Buffalo, but nationally as well. My intention behind this research is to bring awareness to this issue and to guide anyone experiencing a housing crisis first hand to the proper resources to provide them assistance.
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Quantitative Evaluation of Student Classwork for Teaching and Learning Improvement

Haley Olson[1]

[1]SUNY Suffolk County Community College

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Course assessment is an important process that allows teachers to examine and refine the fit between course activities and what students should know at the end of a course. Community college students have limited time to complete classwork for various reasons. When it comes to doing homework, we expect students that complete more homework to get a better final grade in the class. By analyzing the relationship between homework grades and final grades, we can use this evidence to convince students to complete their homework. As a result, we can improve homework completion performance, maximizing student achievement in the course's learning objectives.

We analyzed the relationship between homework grades and final grades from the past three semesters using an unsupervised learning technique called K-means clustering, which groups the data by similarities. Graphing the results and interpreting these similarities allowed us to find unusual patterns and groups within the data.

In general, the pattern shown by the graphs supports our assumption that better homework grades lead to a better final grade in the class. However, the graph also revealed that each semester, there was a small group of students that fell into the category of completing most or all homework but received a lower final grade than expected.

To minimize the number of students that fall into this unexpected category each semester, teachers can review concepts on the homework that students struggled with and give more detailed explanations of these concepts in future classes. In addition, advising students to review prerequisite concepts and increase learning efforts for the course may help reduce the number of students with a final grade that does not correspond to their homework grade.

Further work would include using linear regression to find a line of best fit for the data and predict low grades before they happen and prevent them from happening.

Water and Buffalo, how has it effected our citizens?

Kaelie Pabon[1]
[1]Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

For my poster I will be focusing on how Buffalo has taken care of their water quality, and infrastructures supplying it. After viewing literature on how this is a problem nationwide, for cities such as Flint, MI, where their water was contaminated from the years of 2014-2019 or in Newark where they're facing the same issues with old lead pipes, I became interested in what the city is doing to support clean water for citizens of Buffalo. My approach to this subject will be a photovoice. This consists of photos taken in Buffalo that show water infrastructures and such things pertaining to the quality of it. Questions answered with these photos will be; what's happening, how they affect our lives, why the situation exists, and what we can do about it. The photos and my analysis will show that what is happening around the country is happening in Buffalo as well. Overall I'm hoping to expose any major issues that may need to be dealt with when it comes to water quality in Buffalo. Whether it's unsafe chemicals in our water, or outdated lead pipes that need to be replaced in our systems, citizens should be informed of what's in the water they drink, bathe, and cook with. Research included; local information, three sources to help citizens who are struggling with water quality, and information from the Buffalo Niagara Waterkeeper organization who help monitor, protect, and restore waterways in Buffalo.

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The Effect of a Literacy Professional Development on Different Stakeholders

Klihtoo Paw[1]
[1]*Buffalo State College*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The study describes the effect of a literacy professional development (PD) presentation on participants. The purpose of the current study is to learn about the effectiveness of the PD via participant feedback to improve future PDs on the topic. The literacy presentation was about the theories and instructional practices related to learning to read, specifically orthographic mapping. The session was virtual and attended by teacher candidates, teachers, and university faculty. After the session, participants were surveyed on their learnings, next steps, and opinions. The results showed that 100% of participants learned more about orthographic mapping and teaching reading. Eighty-six percent expressed an interest in PDS to learn more about practical applications.

The Femme Fatale Smoker

Leah Perry[1]
[1]*University at Buffalo*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The Femme Fatale has been a globalized stereotype and has been used as an advertising ploy to target the female consumer market. By instilling the idea of appeal and connecting it to a cigarette, big tobacco companies are effectively getting into the mind of the consumer and picking away at their insecurities while proposing the idea that this product could make their issue better. This presentation explores the different media types in which the Femme Fatale has been portrayed with a cigarette in her hand as a partner in crime. The media types that will be presented are film, advertisements, and books. Not only does this presentation examine its strategic placements within these media categories but also examines the audience in which it is presented to as children up through adulthood are exposed to most of these depictions at a young age when brain development is at its height. Big tobacco has successfully been able to make itself a part of women's beauty standards which will also be explored in this presentation as the Femme Fatale is defined as "an attractive and seductive woman, especially one who is likely to cause distress or disaster to a man who becomes involved with her." Exploring the effects of this sort of advertising on women will highlight how tobacco has transformed the beauty standard and just how manipulative the industry has become.

Acetaminophen Drug Tablet Analysis Using Chemometrics and Raman Spectroscopy

Ms. Meghan Protzman[1], Jinseok Heo[1]
[1]*State University of New York College at Buffalo*

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Counterfeit drugs have raised concerns throughout the world because of their threat to public health and their economic impact on the pharmaceutical industry. Raman spectroscopy is a non-destructive method to

identify an unknown compound using a vibrational spectrum of Raman scattering signals resulting from the interaction of laser light with molecular vibrations of a compound. It can examine a variety of pharmaceutical samples irrespective of color and transparency in a diverse range of mediums. Raman spectroscopy can be adopted for rapid field tests to discover counterfeits because of the minimal sample preparation and the availability of a hand-held device. The use of Raman spectroscopy with chemometric analysis has been well documented as an effective method for the identification of counterfeit pharmaceutical products. Due to ongoing concern about the lack of transparency surrounding the manufacturing of generic pharmaceuticals in the US, this project aimed to examine the utility of the method for the differentiation of generic pharmaceuticals. A test pool of seven brands of acetaminophen was obtained, and representative tablets were characterized by Raman spectroscopy. Two brands were determined to contain a titanium dioxide (TiO2) coating, allowing for simple differentiation. The Raman spectra of brands in which TiO2 was not observed were analyzed using Principal Component Analysis (PCA) to examine the unique variance present in each brand. This revealed discrete groupings of five of the seven brands. The project provides a proof of concept for the differentiation of fake drugs from genuine drugs by Raman spectroscopy and chemometrics and has the potential for the method to be used for the classification and prediction of products.

Homeless In Buffalo, NY

Ms. Jeanatta Purdie[1]
[1]SUNY Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

What is life like being homeless in Buffalo, NY ? Being homeless in America is a massive problem as a whole. There is not just one person to blame for this issue of homelessness, the homeless and how huge of a problem it has always been. I will be comparing homelessness in Buffalo, NY today to chapter 4 of Broke in America. In the chapter of Broke in America it discusses how the cost of housing is increasing, not enough effort being put into housing issues opposed to different streams of funding.The photovoice I am choosing to do for this research paper includes what being homeless in Buffalo, Ny looks like in comparison to the book Broke in America, chapter 4. The photos I have taken are from the community of Buffalo today and show the growing issue of being homeless in Buffalo. My research found that homelessness is also a massive problem in the community of Buffalo. There is an increasing number of women in Buffalo living in shelters as of January 2020. The increase in the homeless community is due to women feeling more empowered to leave abusive situations as well as the universal issue of rent going up.My research poster will focus on where Buffalo's main source of money goes and what is preventing the development of new housing complexes or more shelters or resources for people who are homeless.

Cooking Soup without a Stove

Ms. Leslie Ruiz[1]
[1]SUNY Buffalo State

Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

What does hunger look like for families facing poverty in Buffalo? Impoverishment and hunger in Buffalo involve heavy usage of food pantries, dependence on public welfare such as food stamps and public assistance, living in shelters etc. It also involves limited or no access to supermarkets or chain stores with healthy food choices. Often, the most accessible option is the one that isn't nutritional for our bodies. However, this comes with the assumption that kitchen supplies are available, such as a knife, a stove or microwave, or that an adult is present with the time and energy to even prepare the food. For big families

with low income, the parents often must face the choice of feeding themselves or feeding their kids. Many things that may be deemed as insignificant to the average family is a big deal as it relates to food insecurity, such as wasting food. To collect data, I gathered observations from my environment and research from credible sources online. To collect data, I gathered observations from my environment and research from credible sources online. I am also using Photovoice to aid me in my research of determining if hunger that is experienced across the US is similar to what is happening locally. Even at my school, there is a food pantry available to students which can attest to the food insecurity that is present not only in our society, but America as a whole. Overall, I aim to raise awareness about the realities of food insecurity and the depth of the issue that goes beyond just finances and geographical boundaries.

Transportation In Buffalo

Justin Rutland
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

What does poverty and transportation look like in Buffalo, NY? Across the United States the public transportation system deals with numerous problems on a daily basis. These problems include but are not limited to decades of deferred maintenance, under-investments on routes, rail lines, and buses. In order to determine if what is happening nationally is also a problem here in Buffalo, I will be using Photovoice to complete my research. By using Photovoice I can make sure my point of view on these topics is heard and are brought to light in my community. The data I am collecting shows that Buffalo is no exception to the national transportation issues. This includes changing patterns of wealth, which in this case, means pushing low-income families out of the cities where bus routes are changing and some even becoming nonexistent. My goal is to help bring discrimination within the public transportation system to an end, simply by showing how certain stops in low-income neighborhoods are under-maintained, have little to no lighting nearby, and may not have any sheltered stops nearby. However, depending on where I am in relation to neighborhoods in Buffalo, I have seen some bus stops with small heaters in them. My poster will provide an overview of this issue, highlighting where Buffalo could improve, but also what Buffalo has done well.

In search of an Archaeology of African American lives in Northern New York (1850 - 1900)

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The research presented in this poster analyzes data collected from federal census records, historical newspapers, and other archival records, for the purpose of finding a potential archaeological site that would help reveal details about the unknown lives of 19th c. Black Americans living in Northern New York. With a focus on St. Lawrence County, New York State, between 1850 and 1900, my research highlighted the family of Richard Boston, who resided in Massena, New York. Based upon historical documentation, it is evident that the Boston family resided in St. Lawrence County for at least 67 years (1830–1897). Analysis of census documents over the specified periods revealed various surnames and birthplaces of residents in the Boston family, which implies that some of the inhabitants were not consanguineal. Data related to property ownership revealed that the Boston family had significantly more economic access compared to the average Black family residing in St. Lawrence County. The Boston household's economic and property access, as well as its close proximity to the Canadian border, makes it reasonable to propose further archaeological

investigation into the Boston family's possible connection to the Underground Railroad and freedom seekers. My poster will offer a summary of two research questions that would be explored with the potential archaeological investigation, accompanied by supporting arguments. Illuminating the untold stories of United States freedom seekers in our contemporary world, helps to foster some healing from the damage of American slavery to the benefit of all future generations. Particularly in northern New York, where there is a definite lack of research on the lives of average Black African Americans post emancipation, archaeology could provide tremendous insight.

Inequality within the Criminal Justice system

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In this research paper I will correlate the 2012 documentary The Central Park Five by Sarah Burns and Ken Burns with the 2016 film 13th, by Ava DuVernay. Both films are based on the racial inequality we continue to face in the justice system of the United States. In my paper I will examine how the films portray the ways in which African Americans are treated differently from others in the justice system, are accused of crimes they didn't commit, treated unfairly in investigations, and what happens after conviction. This is exemplified by the story in Central Park Five of the 5 Latino and black teens accused of raping a white woman in New York's Central Park in 1989, whose lives were upended by a miscarriage of justice. DuVernay's film presents the historical background to the development of the prison system, and how provisions of the 13th Amendment to the Constitution have led to wide injustice and mass incarceration by abolishing slavery, except in the case of convicted criminals. DuVernay argues that racism in our country has flourished based on this assertion and the growth of the prison-industrial complex.

Effect of microtubule-targeting antimitotic drugs, Taxol and Vincristine, on oxidative stress in A549 carcinoma cells

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Lung cancer is a deadly disease that affects thousands of people every year. The number of deaths caused by lung cancer alone surpasses the number of deaths caused by the next three most deadly cancers. The low survival rate has led to a lot of research regarding its treatment. The cell division cycle, specifically the regulation of microtubule polymerization and depolymerization, is often the primary focus for several chemotherapy agents. A typical choice is the use of microtubule targeting agents. These drugs come in two forms, microtubule stabilizing and microtubule destabilizing which work by preventing depolymerization of microtubules into its alpha and beta tubulin dimers and preventing polymerization of the dimers, respectively. Regardless of their mechanisms, both drugs impede the cell's functioning and can result in oxidative stress. This lapse in homeostasis is caused by an imbalance of two opposing molecules and if the balance can't be restored apoptosis is often the result. To test the impact of oxidative stress on the cell of two known microtubule targeting agents, Taxol and Vincristine, cell viability was measured as well as oxidative stress levels. Another issue faced by those affected by cancer is the resistance by cancer cells to chemotherapy. One solution that is being researched now is combination therapies. A potential hybrid treatment we are investigating is a combination of both a microtubule stabilizer and a microtubule

destabilizer. Decreased toxicity and reduced side effects, alongside lower risk of resistance will hopefully result in a treatment experience overall.

Investigating the mechanism in regulation of poly-SUMO-2/3 chain modification signals on protein targets in mammalian cells

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The SUMO-targeted ubiquitin E3 ligase RNF4 recognizes poly-SUMO-2/3 chain signals through its four tandem SUMO-interacting motifs and mediates ubiquitination and degradation of the poly-SUMO-2/3 chain modified protein targets. By connecting the SUMOylation and ubiquitination pathways, RNF4 plays a vital role in various cellular processes, including DNA repair, protein degradation, and stress response. Similar to RNF4, the SUMO isopeptidase SENP6 also binds to poly-SUMO-2/3 chain signals through its multiple SUMO-interacting motifs and subsequently catalyzes the disassembly of poly-SUMO-2/3 chains. However, it is unclear whether the interaction of RNF4 with poly-SUMO-2/3 chain signals inhibits the SENP6-mediated disassembly of poly-SUMO-2/3 chains. To address this question, we first synthesized poly-SUMO-2/3 chains in vitro using the SUMO-activating E1 enzyme (SAE1/SAE2), the SUMO-conjugating E2 enzyme (Ubc9), the SUMO E3 ligase RanBP2/Nup358, and the His-tagged SUMO-3 proteins. In addition, we purified EYFP-tagged SENP6 from the transfected human 293T cells by immunoprecipitation using SENP6-specific antibody. Moreover, we demonstrated that the immunopurified EYFP-SENP6 contained the enzymatic activity in disassembling the poly-SUMO-2/3 chains in vitro. We are currently testing the hypothesis that the RNF4 interaction with poly-SUMO-2/3 chains on protein targets stabilizes the chain signals by decreasing the rate of SENP6-mediated poly-SUMO-2/3 chain disassembly. Therefore, this study may elucidate a novel mechanism in control of poly-SUMO-2/3 chain modification signals in mammalian cells.
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Effect of Birch and Sycamore Extract on Growth of Drosophilia Species

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

In our research we are investigating the use of birch bark extract; containing triterpenoids such as betulin, betulinic acid, and lupeol as its major components, in order to observe the effects it has on Drosophila species. In previous studies it has been shown that extract from Terminalia Arjuna has similar triterpenoids and has been observed to be a deterrent in the growth and development of D. Melanogaster when incorporated into their diet. Dried bark of white birch (Betula papyrifera) was extracted by Soxhlet method using various solvents. The average yield of concentrated extracts was 19.35%. 1H-NMR studies confirmed the presence of Betulinic triterpenoids when compared to known reference spectra. The relative content of betulin and betulinic acid has been investigated by GCMS analysis. Preliminary results have indicated that D. Melanogaster that have been fed diets including birch extract from the B. papyrifera have shown resistance to oxidative stress. Betulinic acid has been reported to be more biologically active than other triterpenoids.

This compound has been found in greater quantities in sycamore (Platanus occidentalis) bark than birch bark, we are currently comparing the effects of sycamore extract to birch extract.

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Cognitive Impairments of Sports Related Pediatric Concussion: Case Study

Ms. Tasnim Tarannum[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

For around 1.7 million documented mild traumatic brain injuries (TBI) in the United States of America, 178,285 TBIs are related to sports and recreation among adolescents (Sahler and Greenwood, 2012). Sports-related mild traumatic brain injury or concussion (SRC) is any head trauma that can be caused by sports such as football, hockey, and soccer (Cohen, 2009). Symptoms of SRC can range from emotional outbursts, behavioral changes, loss of consciousness, impaired balance, and slow cognition after the injury (Sahler and Greenwood, 2012). Often these symptoms resolve within 3-4 weeks in youth; however, in some youth, symptoms from SRC may become chronic (Sahler and Greenwood, 2012). One critical aspect of SRC in young athletes is to accurately assess cognitive symptoms so that accurate decisions regarding return to learning or playing can be made.
The Montreal Cognitive Assessment exam (MoCA) is a tool used to assess patients who are at risk of having a cognitive impairment which correlates to a score of 26 or lower out of 30 possible points (Smith, 2007). This case study discusses the novel use of MOCA to assess subtle cognitive deficits in youth after SRC (Smith, 2007). This case report also shed light on how deficits in cognition may persist even after injury in youth and may impact participation such as school duties and interpersonal relations. The case-study participant, a 16-year old male who was 10-weeks post SRC, scored a 22/30 which suggests mild cognitive impairment. Deficits were noted in visuospatial execution, attention, language, abstraction, and delayed recall. For pediatric concussion patients, there is an urgent need for more objective assessments to test for residual cognitive impairment and improvement. Therefore, more research is needed to identify appropriate diagnostic tools so that youth can receive appropriate treatment leading to greater participation in school and sports.

Environmental Hazard Distribution

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The unequal distribution of environmental hazards imposes disproportionate risks across communities. Decades of environmental justice research show that lower income communities and communities of color tend to bear the brunt of these risks. Buffalo is a city with a long history of industrial activity and pollutants. Using the software Social Explorer and several databases on environmental hazards, we will compile a database organized by census tracts in the city of Buffalo. The data will enable us to map and analyze, historically, the distribution of environmental hazards across the city. In this way, we will measure the degree of disproportionate risk and whether associations with income and race biases exist.

Re-building Future Teachers Club

Cassandra Thurn[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The COVID pandemic was devastating to many student clubs and opportunities for student leadership as colleges focused on social distancing and the many challenges to teaching and learning. As we emerge from the pandemic, some colleges are trying to rejuvenate clubs and student leadership. PDS provides a nurturing context for the reemergence of student leadership opportunities. This presentation will explain how we have re-energized the Future Teachers Club at Buffalo State and how collaboration with PDS has helped get this year off to a strong start for student leadership. As President of the Future Teachers Club, I will share some successful initiatives that we have taken and some challenges that we have encountered along the way.

Self-Regulation Problems and Drinking in College Students

Meghan Tyler[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The bulk of research on self-regulation problems and college students' alcohol use has focused on impulsivity as a contributing factor to alcohol use problems. The current study looked to see if other self-regulatory problems such as misjudgment and under-control also play a role in college students' alcohol use problems. Misjudgment is the tendency to mis predict the outcomes of an action; under-control is knowing there will likely be an eventual negative result yet still partaking. The sample of the current study was comprised of 165 undergraduate students at SUNY Buffalo State College (83% female; 60% Caucasian, 24.8% African American, 8.5% Hispanic, 3% Mixed race, 3% Asian, 0.8% other; ages 18-25, mean = 20.3). Participants completed an online self-report survey that included the Impulsivity, Misjudgment, Under-control Scale (IMUS), a measure of their alcohol use, and the Young Adult Alcohol Consequences Questionnaire (YAACQ). Results found that impulsivity, misjudgment, and under-control were each significantly correlated with alcohol use and alcohol-related problems. Regression models indicated that together all three variables predicted significant amounts of variance for both alcohol use and alcohol-related problems. However, in these models, no individual predictor was significant. Diagnostics and the pattern of results suggest that collinearity may be an issue in these models. Implications for future research are discussed.

Should We Take the Leap and Invest in Music for Our Children's Future?

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Music is defined as vocal or instrumental sounds combined in such a way as to produce beauty of form, harmony or dissonance, and expression of emotion. Music affects people more than a nice catchy earworm, because it has both positive and negative physiological and psychological effects on humans. Although some music can have a negative effect on people, with the correct music, there can be extensive and profound benefits. The positive benefits include and are not limited to (a) reducing the effects of anxiety, (b) reducing

the effects of stress and depression; and (c) improving respiration, heart rate, and muscle tension. A lot of these are problems that every single person will go through in their lifetime, and yet many do not have a conscientious awareness of the benefits of music nor the dynamic exposure to music beyond entertainment. It is known that exposure at the earliest ages helps improve brain function and development, and yet most public school music programs do not begin prior to grade four. Anxiety and depression reaches children in elementary schools. How would exposure to music elevate student mental health in pre-K through 3rd grade? Would implementing music and music therapy programs at the elementary level actually save public school districts money in the long run? With prior IRB approval and working with the Erie County Association of School Boards, we will conduct a survey of school district business administrators and music department chairpeople in Erie County Schools to (a) get a description of current music programs, (b) what is currently done for students in grades pre-K through 3rd, (c) cost comparisons of current music programs and the implementation of a proposed expansion, and (d) a cost comparison of the implementation of a new music program and current school district costs for mental health mandates.

Potato-derived peptide for the control of the immune inflammatory response

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Acute inflammation is a normal physiological response that is necessary for the protection of the host from invading microbes. However, uncontrolled or chronic inflammation is a major healthcare problem and is associated with several disease conditions including autoimmune diseases, cancer and even COVID-19. Therefore, there is significant scientific interest in the development of biomolecules that can control the inflammatory response. Food-derived peptides with anti-inflammatory properties have gained popularity due to their availability in the daily diet and limited side effects. Previous reports have shown that the potato-derived peptide DIKTNKPVIF has anti-inflammatory properties. In this work, we investigated the ability of the potato-derived peptide DIKTNKPVIF to down-regulate the inflammatory response of monocyte-derived macrophages. A human leukemia monocytic cell line (THP-1) was cultured and differentiated into macrophages. The macrophages were activated with bacterial lipopolysaccharide in the presence or absence of the peptide. We found that DIKTNKPVIF was not cytotoxic when added to macrophage cultures. Interestingly, DIKTNKPVIF down-regulated the inflammatory response of monocyte-derived macrophages activated with lipopolysaccharide. This was evident by the reduction in the levels of proinflammatory cytokines produced by lipopolysaccharide-activated macrophages as shown by ELISA. The results indicate that the potato-derived peptide reduced and inhibited inflammation induced by bacterial lipopolysaccharide and has potential as an anti-inflammatory therapeutic.

A Starving World: What Happened to The Basic Needs of Human Life?

Ms. Amie Wally[1]
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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

My research question is, what does poverty and food hungry in America look like in Buffalo? There is food hunger in America, issues of young children failure to thrive (FTT), and iron deficiency anemia (IDA). Programs attempt to address this issue, including the supplemental assistance program (SNAP), SNAP for

women, infants, and children (WIC), and thrift plan (TFP). I utilized photovoice to collect statistics about food hunger in Buffalo. Photovoice is a research methodology that promotes the use of photography for positive social change. I took varieties of pictures in Buffalo that emphasized what poverty relating to food hunger looks like. Furthermore, I completed an image analysis to help my audience understand my viewpoint in these pictures. I used three images on my poster that draw a connection between what is happening locally in Buffalo to what's happening nationally in the US. As illustrated in the photos and the local statistics, food hunger is a major issue in Buffalo. My preliminary findings are that more than 100,000 children under-five in the US are underweight. Nearly 3 in 10 residents and 4 in 10 children live in poverty in Buffalo. Buffalo needs a lot of improvement and assistance regarding poverty and food hunger to its residents. I have included community resources; support groups and ways individuals can get involved to assist advancing change in this topic.

Identifying New Precursors for Harmful Disinfection Byproducts

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Disinfection plays a critical role in preventing water-borne diseases. However, disinfectants such as free chlorine can react with the organic material naturally present in water to form toxic disinfection byproducts (DBPs). More than 700 DBPs have been identified, many of which show risks of adverse long-term health effects, but only 11 are currently regulated in the United States. In this study, we focused on haloacetonitriles (HANs), a group of unregulated but highly toxic DBPs featuring a nitrogen-containing nitrile group. Our recent work revealed that the current understanding of HAN formation is limited to only a subset of its precursors. Aniline is a nitrogen-containing functional group commonly found in industrial chemicals, pharmaceuticals, and personal care products, but has not been evaluated for its reactivity to form HANs. Therefore, we conducted experiments using chlorine and bromine as disinfectants on two model molecules, aniline and 2-ethylaniline. Gas chromatography was then used to quantify the DBPs formed. The results showed that both aniline and 2-ethylaniline formed HANs at levels comparable with tryptophan, a known potent HAN precursor. For example, after a 24-hour reaction with chlorine, aniline yielded about 43% the HAN concentration as tryptophan did. Even more conclusively, after the 24-hour bromine reaction, aniline produced a greater amount of HAN than tryptophan, and 2-ethylaniline actually produced over twice the amount tryptophan did. This research identified a new group of precursors for a highly toxic DBP group. This knowledge will be valuable in the assessment of water sources for DBP formation risk, and will hopefully lead to a better understanding of HAN formation.

2022 Baja SAE Competition Series

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

The Baja SAE Competition Series is a premier engineering design competition that challenges collegiate level students to conceptualize and manufacture a single-seat, off-road vehicle capable of traversing rocks, sand, logs, steep inclines, mud, and shallow water in any or all combinations and in any type of weather including rain, snow and ice. Our team will compete with other students from around the globe, with each team competing to have its design accepted for manufacture by a fictitious firm. Every aspect of the vehicle's design, production and performance will be tested in several events leading to a series of races taking place in June of 2022. This year our team is attempting to completely and radically redesign our vehicle to deal

with the issues in the global supply chain caused by COVID-19. While previous teams had the luxury of ordering cheap materials and steel from overseas, our team is working to locally source materials and build relationships with local businesses. This year our team also began developing an entirely new drivetrain that's never before been implemented on a commercially available vehicle. In doing this our hopes are to reduce the overall complexity while making the vehicle more reliable and repairs much easier. Besides exposing students to techniques found in industry like welding and machining, participation in this contest gives students valuable exposure to and engagement with industry professionals to enhance skills, help build their personal network, and prepare them for the workforce after graduation.

Investigating the Role of Outer Membrane Vesicles in Dispersion

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Poster IV, SAMC Atrium, April 23, 2022, 2:45 PM - 3:45 PM

Biofilms are surface-associated communities of bacteria that grow encased within a self-secreted slime matrix. The protected community structure promotes heightened antimicrobial tolerance. For some biofilm-forming species like Pseudomonas aeruginosa, this results in chronic infections that lead to 2,700 annual deaths in the US. One strategy being researched for overcoming biofilm-specific tolerance is biofilm dispersion. Biofilm dispersion is the last stage of growth, in which bacterial cells exit the biofilm to initiate growth in new locations. Once dispersed, biofilm bacteria become more susceptible to antimicrobials. However, dispersed cells can spread infection and exhibit increased pathogenesis. One mechanism for increased pathogenesis in dispersion is the increased production of outer membrane vesicles (OMVs). OMVs transport signals, toxins, and degradative enzymes, helping bacteria evade host immune responses and increase antibiotic resistance. Current research shows 1) the production of OMVs is highest during dispersion; 2) OMVs are required for natural dispersion to occur. However, the relationship between dispersion and OMV biogenesis remains unclear. The goal of this study was to explore this relationship and determine the impact of specific dispersion cues on OMV formation. Dispersion can be triggered by changing concentrations of nutrients (glutamate), toxins (nitric oxide), and bacterial signaling molecules such as cis-2-decenoic acid (cis-DA). It was hypothesized that 1) dispersion cues would differentially produce OMVs due to known differences in dispersed cell phenotypes; 2) cis-DA would produce the most due to its similarity to other OMV inducers and its role as the native dispersion inducer. To test these theories, P. aeruginosa was exposed to various dispersion cues (above) and OMVs were isolated and quantified via lipid assay and nanoparticle tracking analysis. The data suggest that OMV production varies by dispersion cue with cis-DA inducing the most. To test the ability of cis-DA to directly induce OMV biogenesis, we made use of an OMV deficient mutant (ΔpqsA) and again measured the OMV production in the presence and absence of cis-DA. Data suggest that cis-DA is capable of OMV biogenesis and may be required for increased OMV biogenesis seen during dispersion.