24th Annual

Student Research & Creativity Expo

FREDONIA
STATE UNIVERSITY OF NEW YORK

CUR

POSTERS
PRESENTATIONS
DISPLAYS
PERFORMANCES

Thursday, May 5, 2022 12:00 – 4:00 p.m.
Williams Center, Fredonia, New York

12 Noon Buffet Lunch and Featured Student Work
Williams Center Room S204 ABC

OK FOR POSTING — MARKETING AND COMMUNICATIONS

STUDENT RESEARCH AND CREATIVITY EXPOSITION
Thursday, May 5, 2022
Williams Center
12:00 p.m. to 4:00 p.m.

Introductory Program

Welcoming Remarks----------President Stephen Kolison

Welcoming Remarks----------Provost David Starrett

Welcoming Remarks----------Jack Croxton
Director of the Office of
Student Creative Activity
And Research

Announcement of the Donald--------Jack Croxton
Nasca Undergraduate Research
Award Recipients

Student Research Presentation------Rachel Blake
Morgan Wright
Jared Laurito

Student Performance----------Joan Adams
Hannah Vanderbilt

Most exhibits will be available for viewing throughout the day – students are scheduled to be present to answer questions at the indicated times.

POSTER / DISPLAY PRESENTATIONS

Multi-purpose Room, Williams Center

1:00 p.m. to 1:30 p.m.

Baby Names

Presenter: Madelyn Yochim
Mentor: Amber Powell
Abstract: We all have names that identify who we are as a person. What our parents/guardians chose to name us may depend on many different factors. Possibly, the name is a family name, or they just enjoyed the sound of the baby name. But does year correlate to the popularity of baby names? As the years go on, are there certain trends in names? The proportion and number of names for a given year were statistically analyzed to search for any correlations between baby name popularity and year from 1880 until 2017. The data used was collected from the social security information on ssa.gov.

Microplastics: the silent killer

Presenter: Casey Huber; *Co-Presenter:* Justine Bloom
Mentor: Ivani Vassoler-Froelich
Abstract: Plastic pollution is far worse than we thought because of a relatively new discovery of particulates known as microplastics. Microplastics bioaccumulate within aquatic animals, namely fish, until eventually they are eaten by predators, namely humans. The issues found with microplastics, especially at this volume and variety, include replacing nutritional substances and lacerating the stomach as well as decomposing into toxic chemicals. To combat this, we must implement local, national, and international policy to reduce the number of microplastics that can be produced, and then educate and encourage plastic prevention amongst the population.

Stress and it's effects on spinal health

Presenter: Bailey Mudge
Mentor: Jonathan Titus
Abstract: Do you really know stress effects your body? Stress of work, home life or everyday living effects your spine and back. Prolonged tension in your neck, shoulders and spine can

cause back pain. Poor posture is also something we don't think about and can lead to many different issues.

A 3D Reconstruction of the claws of a Triassic Shrimp from Madagascar using CT-Scans

Presenter: Elizabeth Wightman
Mentor: Thomas Hegna
Abstract: The area near the city of Ambilobé, Madagascar, in the Diana Region, is well-known for outcrops of Triassic shale. The outcrops bear siliceous nodules containing molds of various fossils, including crustaceans. A small, ellipsoidal nodule containing a species of shrimp from the Triassic age was evaluated in this study. The fossil was analyzed using computed tomography (CT) scans and then processed using SPIERS software. This technology allowed for a digital dissection of the fossil, extracting the pincers which were otherwise hidden from view inside the nodule. The structure of the pincers was examined in three dimensions using the digital model, revealing a long, straight architecture for the chelipeds. Utilizing comparisons with modern shrimp, we revealed that the shrimp was likely an omnivore.

Geoarchaeological Analysis on the Mckendry Archaeological Site: Additional Reconstruction of Site Stratigraphy

Presenter: Joli Springborn
Mentor: Matthew Purtill
Abstract: The Mckendry Archaeological Site is an important precontact Native American site located near Irving, New York. The site represents the remains of approximately 4000 years of Native American life. Since 1989, professional archaeologists and volunteers have worked on the site and recently college students have had the opportunity to investigate the archaeological and geomorphological aspects of the area. This study implements particle-size analysis, dual-frequency magnetic susceptibility, and Munsell color determination to describe a profile from the site excavated during the fall of 2021. Project results are compared to previous geoarchaeological work that examined the development of the landscape. Understanding the geomorphological history of the Mckendry site provides additional insight into why Native American groups repeatedly used this specific landform.

The shift in Sexism

Presenter: Maria Suri
Mentor: Mary Sievens
Abstract: During the 1840's, the Fredonia Academy was dominantly male but offered a select few courses for women as well. In the 50's however, we see the shift from boys and girls only classes to Co-ed. My podcast will focus on this shift and go into depth about why it happened.

Time Series Analysis of Industrial Census Data

Presenter: Olivia Sylvester; *Co-Presenters:* William Davis, Patricia Dudley
Mentor: Lan Cheng
Abstract: What is a time series and what is the process of creating one? Given over 20 years of data from the US Census Bureau, from over 80 industries, we attempt to analyze thousands of data sets using time series graphs and various methods of clustering. This daunting project follows a step by step process, by creating an algorithm that both analyzes large sets of data, and is able to combine them based on common characteristics such as mean, median, and standard deviation. The results of the computational analysis are finally displayed in a set of time series graphs that are able to to be understood and analyzed by the average person.

Attributions of Responsibility for COVID Related Illness

Presenter: Nicole Cronin; *Co-Presenters:* Sabrina Suriani, Caitlan Dean, Gabrielle Carris
Mentor: Jack Croxton
Abstract: The COVID virus has impacted our lives in various ways. In our study, we investigated how prior knowledge, the severity of the illness, and vaccination status change the attributions of others. 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 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-vaxer would be perceived as more responsible and receive less sympathy. Results will be shared at the conference.

Big Five traits as predictors of rape myth acceptance

Presenter: Ashley Zambotti; *Co-Presenter*: Rebecca Jaeger
Mentor: Darrin Rogers
Abstract: Introduction: Rape Myth acceptance, a set of victim-blaming attitudes toward sexual assault survivors, contributes to increased likelihood of sexual aggression and negative outcomes for victims. We investigate whether the personality traits Openness, Conscientiousness, and agreeableness are possible predictors of rape myth acceptance. Method: An online survey was administered to undergraduate students (Female N= 151, Male N=45, Non-Binary N= 2) at two different institutions: a Liberal Arts focused University in the northeastern USA (62%), and a Hispanic Serving Institution in the US-Mexico border region (34.5%)). Results will be presented and discussed in light of efforts to further understand predictors of sexual aggression and reduce its incidence.

Examination of Sequential Verbalizations in Parent-Preschooler Sharing of a Wordless Book

Presenter: Kaci Carron
Mentor: Andrea Zevenbergen
Abstract: This study examined the relationship between various types of parental utterances and meaningful verbalizations in children during a shared reading of a wordless picture book. Meaningful verbalizations were defined as an utterance that shows that a child comprehends a question and/or when the child says something that contributes to the shared storytelling of the book. Previously acquired data from 22 parent-preschooler dyads were coded using the parameters of three types of parental utterances (open-ended questions, praise, and attention-grabbing devices) and child meaningful verbalizations. It was hypothesized that parent attention-grabbing strategies would be more successful in gaining a meaningful verbalization from the child compared to parent open-ended questions or praise. The transcripts were subjected to sequential data analysis. Study findings and conclusions will be presented.

The Impact of COVID-19 on College Students' Views of Themselves, Relationships, and the Future

Presenter: Emily Lewicki
Mentor: Andrea Zevenbergen
Abstract: The purpose of this study was to assess college students' attitudes towards themselves, interpersonal relationships, and the future with consideration of the COVID-19 pandemic. It was hypothesized that study participants would report negative impacts of the pandemic on all three areas. The participants of the study were college-aged students enrolled at SUNY Fredonia. Participants met with a student researcher via Zoom to answer a questionnaire about the impact of COVID-19 on these three areas. The results of qualitative analyses on these data and conclusions from the study will be discussed.

1:30 p.m. to 2:00 p.m.

How heart stroke can be affected by ethnicity and obesity

Presenter: Shurburnie Jonis
Mentor: Todd Backes
Abstract: Heart stroke is one of the major causes of disability, it lowers quality of life, and it is the second leading cause of death. There are five different types of heart strokes: Ischemic, Hemorrhagic, transient Ischemic attack, cryptogenic and brain stem stroke. Some important warnings of a stroke are sudden numbness/ dizziness, severe headache, and sudden confusion/trouble speaking. The sooner a stroke can be detected the higher the chance of a positive outcome is, some common detection methods are physical exam, blood test, CT scan and MRI. Blacks have a risk of first ever stroke of almost twice compared to whites. Furthermore, these results correlate with the lack of physical activity among blacks, which seem to be much higher compared to whites. Current treatments fro a stroke are IV medication, end-vascular procedure, surgery and surgical clipping.

COVID-19 Related Hearing Loss

Presenter: Rachel Blake; *Co-Presenters*: Morgan Wright, Jared Laurito
Mentor: Nikki Sharon Go
Abstract: A lot is still unknown about the possible short-term and long-term effects of COVID-19. Several case reports have described the onset of hearing loss and/or tinnitus in COVID-19 patients with no prior history of hearing abnormalities. Limited evidence suggesting an association between COVID-19 and auditory implications is weak. Hearing loss can have persistent negative effects on one's communication and overall well-being. In this study, we explore the effects of COVID-19 on the human auditory system. Here, we examined the hearing abilities of 22 volunteer participants between the ages of 18 – 35 years (11 = had COVID-19; 11 = controls). Individual hearing abilities were assessed using a variety of clinical audiological measures. Data from these two 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 system and its associated consequences.

Current Practices in Monitoring Cisplatin-Related Hearing Loss

Presenter: Alexandra Stone
Mentor: Nikki Sharon Go

Abstract: Cisplatin is an effective, commonly used agent in chemotherapy treatment among cancer patients. However, it is known to be highly toxic to the ear often resulting in permanent and progressive hearing loss and tinnitus (persistent ringing in the ears). Hearing loss is known to have detrimental effects on speech and language development, communication, and to one's overall quality of life. Previous studies have shown that 40-80% of adults and 50-60% of children develop permanent hearing loss following chemotherapy treatment using Cisplatin. A recent study by Breglio et. al. (2017) showed evidence of Cisplatin being retained in the inner ear structures for longer than initially reported. This suggests the possibility of delayed onset and/or late progression of hearing loss and tinnitus. Here, we review current recommendations, guidelines, and clinical practices in monitoring chemotherapy-related hearing loss.

Museum Exhibition Consumerism Critique Through the Lense of Burke's Pentad and Ratios

Presenter: Hannah Barden
Mentor: Angela McGowan-Kirsch
Abstract: Much of the existing literature which employs Burke's dramatistic theory of rhetoric focuses on ratios. Ratios refer to areas of overlap between tenets of the pentad. These tenets include act, agent, scene, agency, and purpose. This paper aims to examine a consumerism-critiquing rhetorical act—a museum exhibit created by a social-commentary artist—by applying dramatistic theory. This analysis, however, focuses heavily on dynamics of power within pentad tenets themselves. Ratios are discussed in a more supportive role, as they shed light on what causes tenet-internal dynamics. It is found that 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, balance-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.

Smart City Traffic Guidance; Painting the Urban Grid

Presenter: David Hurtgen; *Co-Presenter:* Nathaniel Storey
Mentor: Junaid Zubairi
Abstract: Though our objectives are defined separately by our advisor, we are developing computer programs that run in tandem, so we would like to present as a group. Abstract: In this project, we develop computer algorithms to provide guidance for avoiding traffic congestion to motorists passing through urban intersections and implement a visualization tool to show the grid arranged in streets and avenues with traffic lights at each intersection. Least cost graph-based algorithms will be used to provide short detours around congested areas and standard OpenGL graphics libraries will be used for drawing the grid and color-coding congested roads. Such a program could assist in relieving congestion in a smart city as soon as it is detected while providing a visual simulation to show its effect.

World Without Borders: A Universe across Mediums

Presenter: Anne Smith
Mentor: Michael Sheehan
Abstract: World Without Borders: A Universe across Mediums is the showcasing of two separate mediums depicting the same story: a set of tarot cards and a video game. The tarot cards are hand-drawn and colored, with each relating to both the storyline and the major arcana. With the same characters and world, the story is taken to another mode; a video game in the visual novel genre, one that contrasts the non-linearity of the tarot card set. Spanning over one hundred pages of code, the game, titled Another Day, took over 40 hours of work, with the visuals, coding, and writing all handled by Anne Smith. One medium is physical, non-chronological. The other is digital, linear. Jumping between mediums with the same universe has shown the strengths and weaknesses of the two forms, and demonstrating the differences between them can provide a deeper consideration of the importance of a story's presentation.

Newburg Spine & Sports Chiropractic Internship

Presenter: Christopher Buchanan
Mentor: Todd Backes
Abstract: This internship with Newburg Spine and Sports was overseen by Dr. Joel Newburg who is the owner and chiropractor of this facility. I was able to obtain knowledge about the chiropractic profession as well as day-to-day operations. While watching hundreds of adjustments, I was able to document the visit in a professional way as clinical SOAP notes, which were later to be sent and saved for auditing and insurance purposes. I was also able to assist patients in exercise prescription, decompression (traction), heat and e-stim. While I was on-site shadowing, I was able to be very hands on which helped me get a true, live experience of how an office is typically ran. I was also able to improve my public speaking and patient relation skills. This internship was successful in making my future plans and goals solidified as I am planning on perusing a career in chiropractic.

Pressure–Temperature Evolution of Garnet-Bearing Blueschist in Central Qiangtang Metamorphic Belt, Tibetan Plateau

Presenter: Dominique Martello
Mentor: Wentao Cao
Abstract: A garnet-bearing blueschist from the Lanling area in Central Qiangtang Metamorphic Belt of the Tibetan Plateau was studied to elucidate regional pressure-temperature (P-T) history. The sample contains a mineral assemblage of garnet (Grt), glaucophane, epidote-clinozoisite, chlorite, quartz, and several minor minerals. Anhedral glaucophane is the dominant matrix mineral, with inclusions of epidote, rutile, apatite and ilmenite. Euhedral chlorite occurs

locally as pseudomorphs after garnet. The Mg# of garnet varies from 0.09 at the core, to 0.15 at the rim while XCa varies from 0.26 to 0.24. Isochemical phase equilibrium modeling along with garnet isopleths yields a clockwise P-T path from 2.5–2.6 GPa, 480°C to 2.4–2.5 GPa, 490°C. The P-T results are consistent with previous studies on the temperatures but yield a higher pressure. They indicate the specimens returned from a depth of 72–78 km along a cold subduction channel.

A Shortcut to Cutting Triangles

Presenter: Olivia Sylvester
Mentor: Robert Rogers
Abstract: 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 wished 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.

Perception of Traits and Attitudes as a Function of Gender, Occupation, and Voter Behavior

Presenter: Brionna Emery
Mentor: Jack Croxton
Abstract: The purpose of this study was to investigate how people form impressions of others based on limited information. Subjects were assigned one of eight conditions where they were given a target character's gender, occupation, and political behavior (Biden or Trump supporter). They were then asked to estimate the degree to which they believed the character would possess various traits and attitudes. (friendly-unfriendly, compassionate-uncompassionate, pro-gun-anti-gun, passive-aggressive, liberal-conservative, pro-life-pro-choice, wealthy-poor, incompetent-competent, religious-non-religious, rigid-flexible). We found that voter behavior had a tremendous impact on participant's impressions and the effect of gender and occupation was much less. We also found an interaction effect on a few of the variables.

2:00 p.m. to 2:30 p.m.

Does song signal change dominance status in male crickets?

Presenter: Samuel Wilczynski; Co-Presenter: Logan Wilson
Mentor: William Brown
Abstract: Achetus domesticus, engage in aggressive behaviors with other males over resources and reproductive opportunities. There are many influences on behavior, including body size and the ability to produce song. Here, we observe the role of cricket song in establishing and signaling dominance. Dominance is established as crickets win or lose contests. Crickets with pre-established dominance are more likely to win a subsequent fight. First, we examine how the presence or absence of song influences winning in inexperienced crickets that lack pre-established dominance. Second, we test if pre-established dominance is reversible. Pre-dominance will be established by engaging in initial contests to determine repeated winners when both participants can produce song. Dominant crickets will then be muted with bee's wax on calling structures and tested again against an unmuted cricket. In contrast, subordinate males will be left unmuted but tested against muted crickets, seeing if dominance status is increased when the subordinate can sing. Experiment ongoing.

Fungi Diversity in the Campus Woodlot

Presenter: Noah Dake
Mentor: Jonathan Titus
Abstract: Fungi are the linchpin of the world's natural systems and function as mutualists with vegetation linking ecosystems together and are also the primary saprophytes. The Campus Woodlot is a seven acre forest on the Fredonia campus. It is quite diverse with a variety of forest types and a rich woody and herbaceous flora. I surveyed the forest for fungi from January – May 2022, using a random walk survey methodology. Fungi, when encountered, were photographed and potentially identified. Location and ecological setting for each specimen was recorded. A variety of guides were used for identification and identifications were verified by mycologists. Fungi were collected, dried, and deposited in the herbarium. Over 50 different fungal species were observed in the Campus Woodlot of a variety of types including bracket fungi, mushrooms, coral fungi, puffballs, jelly fungi, tooth fungi and sac fungi. The majority were saprophytes but a substantial percentage were mycorrhizal mutualists.

g series

Presenter: Nia Gill
Mentor: Jonathan Titus, Margaret Urban

Abstract: In an age where our interaction with nature and our surroundings is rapidly decreasing, a greenhouse can introduce us to beauty we otherwise would not be exposed to. The Falcone Greenhouse in the Science Center hosts a myriad of plant species from around the world. As a biologist and an artist, I have created the g series to represent the beauty and diversity of the plant kingdom based on the species in the greenhouse. Through these botanically relevant works of art, I am presenting the greenhouse through my own eyes. I hope this project exposes students to the wonders of the plant kingdom and attracts students to the Falcone Greenhouse early in their studies so that they can be exposed to its benefits for as long as possible.

Five Senses of a Breakup

Presenter: Emerson Stein; *Co-Presenter:* Corin Derby
Mentor: Michael Sheehan
Abstract: Five Senses of a Breakup is a video poem project that consists of five total videos. Each video includes a poem that is read over a video that is playing to go along with the current sense that is being covered. In order it goes sight, sound, touch, smell, taste.

Birds of Rockefeller and You

Presenter: Justine Bloom
Mentor: Jonathan Titus
Abstract: Migratory birds are under constant threat from habitat loss, climate change, and anthropogenic interference. Here on campus we see just how dangerous our infrastructure can be for migratory birds. Our campus woodlot is part of a major migratory route, and the windows of Rockefeller that face the woodlot wound and kill birds at a highly dangerous rate. Together we can solve this issue by reporting the birds we see dead around campus and by campaigning for bird-safe window enhancements such as vinyl appliques that have been proven effective by numerous studies. Become a part of the change; get educated and fight for the birds!

Physical Therapy Aide: Capstone Internship Experience with Rehabilitation Specialists

Presenter: Melanie Gleason
Mentor: Jonathan Titus
Abstract: The importance of educating athletes on injury prevention is my chosen capstone research topic. I plan to create a poster to set up at OSCAR describing the benefits and downfalls of athletic education (and lack of education) on preventing sports injuries. My

internship was at Rehabilitation Specialists- a Physical Therapy office in Jamestown, NY. This topic/thesis is currently a work in progress.

The Sedentary Lifestyle of the American Population: Health Impacts and its Avoidance

Presenter: Sara Corwin; *Co-Presenter*: Katrina Labin
Mentor: Todd Backes
Abstract: We will cover the major health impacts that a sedentary lifestyle has on the majority of the American population. We will discuss issues such as decreased life expectancy, obesity, and the immediate need for change. We will define the organization EIM (Exercise is Medicine) and its initiatives and goals, how its work is centered on combating an inactive lifestyle. Finally, we will address the topic of our grant proposal, EIM-OC (Exercise is Medicine On Campus) and our proposed plan in order to help our campus' students become more active and able to avoid the negative health issues that an inactive lifestyle can cause.

The Dewittville Creek Restoration Monitoring Project: First Year Objectives and Results

Presenter: Kathryn Smith; *Co-Presenters*: Elizabeth Wightman, Abigail Nordwall, Brett Boyer
Mentor: Matthew Purtill
Abstract: Dewittville Creek, a tributary of Chautauqua Lake, recently was the site for a streambank restoration project via the New York State Water Quality Improvement Project program. Significant stream migration and erosion at a meander bend near the SR 54 and Meadows Road intersection prompted the restoration. There is a history of long-standing instability with >500 feet of total stream centerline migration between 1938 and today. Our goal is to start a multiyear monitoring project to better understand stream morphology over time as well as the effects of the restoration project. Results for the first year indicate variable total suspended sediment yields with significant increases during high flow, and considerable scouring of the channel bed around several of the engineered spurs. Future work aims to enhance our understanding of stream behavior by gathering additional data under various conditions.

The History of Women within the Fredonia Academy

Presenter: Nala Torres
Mentor: Mary Sievens
Abstract: A visual depiction of the research findings of women who have previously attended the Fredonia Academy, along with their accomplishments. The presentation will compose of pieces of work by previous female students and information of their educational accomplishments.

Crimes and Violence in Schools

Presenter: Stephanie Danat
Mentor: Amber Powell
Abstract: School violence and crimes are happening more frequently in this day and age. Everyday there are problems in schools among students that could lead to an increase in violent behavior. Teachers and school administrators are constantly going through risk management training such as cyberbullying and sexual harassment to protect their students, but is it enough? Are teachers being given the correct tools and support? Are school resource officers on campus given proper equipment to keep the children safe? Researchers have been collecting data for years from several different schools in many states. Therefore, data analysis of correlations between violence and risk management training was conducted along with school resource officers abilities, equipment, and presence were observed. This data was collected from nces.ed.gov.

Better Safe than Sorry: Women Overestimate Men's Likelihood of Sexual Assault and Undercorrect for Situational Facto

Presenter: Brionna Emery
Mentor: Darrin Rogers
Abstract: Men tend to judge acts of aggression as less aggressive and more acceptable than women do (Stewart-Williams, 2002), suggesting that men and women might judge the likelihood of gendered sexual aggression differently. It is hypothesized that women will overestimate the likelihood of men's sexual aggression due to a "better safe than sorry" approach to personal safety, and that they will insufficiently correct for the effect of a situational event. This hypothesis was tested with 361 undergraduate students. In a virtual social situation presented via online survey, participants indicated choices about a potential sexual assault. Men responded naively while women were instructed to think like men. To test the effect of situational factors, randomly-selected participants "heard" a social interruption right before this decision. The effects of this interruption and participant gender on sexual aggressiveness will be analyzed and discussed in light of women's safety strategies and public messaging about sexual aggression.

2:30 p.m. to 3:00 p.m.

On the Move

Presenter: Allyson Hineman
Mentor: Amber Powell
Abstract: Just over 40 million Americans move into a new home each year. Reasons for relocating are endless, including finding a new job, establishing a new household, or even handling financial constraints. How many times have you moved locations in your lifetime? The United States Census Bureau collects population data per county in each of the 50 states every ten years. Using current data on births, deaths, and migration, the Census Bureau's Population Estimate Program calculates the approximate change in population over time between each decade. But how accurate are these estimates? Are there specific U.S. counties that tend to see a spike in population growth or decline? Did the Covid-19 pandemic alter migration trends? Through methods of statistical analysis, we can begin seeking answers to these questions by ultimately producing animated maps of the change in population by county for each U.S. state.

A Statistical Analysis of the United States Covid-19 Data

Presenter: Mckayla Polowy
Mentor: Amber Powell
Abstract: The Covid-19 pandemic has been affecting the world for the past 26 months. As we continue through this pandemic, cases continue to rise, and death counts increase. Statistical analyses were conducted on Covid-19 data from the United States with variables including; total cases, confirmed cases, state, date, total death, and consent deaths. To determine relationships, and trends between these variables, multiple different types of statistical tests were conducted including linear regression and logistic regression. It was stressed at the beginning that we had "2 weeks to flatten the curve", what does this "curve" currently look like? Are the numbers of new cases continuing to rise as time continues? What does the death trend look like? Which state was the most affected by cases and deaths? The data used was collected from data.cdc.gov.

"If you have to use force, it's rape" A Rhetorical Analysis Using Bitzer's Rhetorical Situation Theory.

Presenter: Caitlan Dean
Mentor: Angela McGowan-Kirsch
Abstract: This paper utilizes Bitzer's theory of the rhetorical situation to analyze an 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. Along the bottom reads a line “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 fight against violence against women. The rhetorical act will be analyzed through the use of Bitzer’s theory, looking at the exigence that is the sexual abuse many women face in South Africa, 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.

Using Rhetorical Analysis to Analyze Protest at MSU Surrounding Larry Nassar Scandal

Presenter: Mara Marsh
Mentor: Angela McGowan-Kirsch
Abstract: In January of 2018, a photograph revealing a protest at Michigan State University surfaced after the prison sentencing of the college’s and USAG’s athletic doctor, Larry Nassar, after being charged guilty of sexual assault. The rhetors consist of a group of MSU students who use different colors, font choices, and symbols to portray their stance that MSU holds partial blame for the Nassar scandal. Using Lloyd Bitzer’s Rhetorical Situation (1968) provides a deeper analysis of this rhetorical act through his main tenants. The exigence is revealed to be Nassar’s prison sentencing, the rhetorical audience is MSU’s administration, and the constraints consisting of the student’s credibility as students as well as the conflicting attitudes from their rhetorical audience. This paper also touches on the historical context surrounding the exigence, as well as implications that arose from the effects of the protest and how to further expand one’s knowledge on the Rhetorical Situation.

Covid-19 Vaccinations

Presenter: Maxwell Schuman
Mentor: Amber Powell
Abstract: Since the beginning of the Covid-19 pandemic, the key concern has been how to slow down and eliminate the spread of the virus. Besides contracting the virus, medical professionals say the next best alternative to protect oneself is to receive a vaccine. Given the current political and social climate regarding the vaccine, a reoccurring question continues to be asked: When will the population become fully vaccinated? Analysis was done on vaccination trends on states or regions of the United States to see how they differ from each other. The vaccine data was taken from Kaggle.org.

Involvement of Barentsz in gurken mRNA Translation in D. melanogaster

Presenter: Alexander Mathewson
Mentor: Scott Ferguson
Abstract: Gurken is a signal molecule responsible for dorsal/ventral patterning of the Drosophila melanogaster oocyte. During oogenisis, gurken (grk) mRNA must be localized to the dorsal-anterior corner of the oocyte before undergoing translation; a lack of translation results in ventralized eggshells. The Ferguson Lab recently identified Barentsz (Btz) as a suppressor of the ventralized phenotype. Btz is a core component of the Exon Junction Complex, but little else is known about the protein's role in translation. To characterize this novel interaction between Btz and grk mRNA, a Btz-GFP chimera was immunoprecipitated from ovary lysate. qRT-PCR was performed on the precipitate, but inconsistencies were present in the PCR controls which were attributed to shortcomings in the precipitation. Western blots are being performed on the precipitate to determine the effectiveness of the reagents before conducting further study.

Mother-To-Mother Advice On Opioid Use During Pregnancy

Presenter: Mackenzi Adams; Co-Presenter: Sarah Vasconi
Mentor: Lisa Denton
Abstract: Our project is a qualitative analysis of comments (N=211) from the website "babycenter.com". On this site, mothers are able to communicate with other mothers on various topics such as pregnancy and motherhood. We analyzed conversations about the safety of the use of opioids during pregnancy. We were able to discover these specific conversations by utilizing the search function and using keywords such as "opioids" "pain pills" and "oxycontin" to find the most relevant posts. We then collected the comments from these message board posts and used a Consensual Qualitative Research method to analyze the content of the messages to determine the kind of themes found within these conversations. Results suggested there were multiple themes, including: Recommendations, Judgment, First Hand Accounts, Risks and Benefits, Empathy, and Alternatives.

Pay It Forward

Presenter: Abigail Tartaro
Mentor: Joseph McFall
Abstract: We all know that when someone does something kind for us, it makes us feel good. I decided that I wanted to take a twist with this project, and study how the person that is performing the random acts of kindness grows in their own happiness when they are paying it forward. Every week, the participants engage in random acts of kindness of their own. Every

Monday, life club meets and discusses what they did and how it impacted their own happiness. We have been completing happiness trackers from when the club first started, to the very last club meeting. We have noticed a huge impact on the growth of happiness through the completion of random acts of kindness.

Sexual Aggression and Gender on The Dark Tetrad

Presenter: Tiffany Denault; Co-Presenter: Samantha Richter
Mentor: Darrin Rogers
Abstract: Sexual aggression is a huge issue across the world, especially in relationships. One thing that can assist in predicting if a relationship is more likely to be aggressive is the dark tetrad, four antisocial personality traits–narcissism, Machiavellianism, psychopathy, and sadism–that have been shown to be associated with sexual aggression. We examined whether gender moderates the dark tetrad-sexual aggression relationship in an online survey (N=242 undergraduates). Results will be discussed in light of efforts to reduce the occcurence of sexual aggression in relationships.

Silver Linings of the Coronavirus Pandemic

Presenter: Mia Piede
Mentor: W Lee
Abstract: This work proposes an overview of the positive experiences that individuals have had, which may not have been possible if it were not for the COVID-19 pandemic. For this project, the silver linings individuals found despite enduring the loss and devastation brought on by the global pandemic will be expounded upon. This poster will share information on new relationships, fresh skill sets, and life changes which may not have been possible in the absence of a pandemic.

Women Going The Distance at The Fredonia Academy

Presenter: Christian Martin
Mentor: Mary Sievens
Abstract: The basis and focus of this research explains the diversity as well as the growth in womens education and opportunities at the Fredonia Academy from 1827 to about the late 1850's where we see women put in to more positions outside of the normal teaching jobs

Differences in Post-Traineeship Affective Commitment in an Interprofessional Addiction Services Leadership Program

Presenter: Ericka Johnson
Mentor: Michael Clarkson-Hendrix
Abstract: Background: Affective commitment, which is a professional's satisfying attachment to their occupation (Meyer et al., 1993), is a critical component of workforce recruitment. This study examines differences in post-traineeship affective commitment (PTAC) among social services and addictions counseling students that were involved in an interprofessional addictions leadership program. Methods: This study used a cross-sectional survey of 13 student participants. The majority of participants were social services students (61.5%). A T-Test was used to analyze differences in PTAC. Results: On average, PTAC for social services students was moderately high and high for addictions counseling students. PTAC was statistically significantly different ($p<.01$) for social services students and addictions counseling students. Conclusion/Implications: Addictions counseling students demonstrate higher levels of PTAC when compared to social services students. Findings suggest that admissions, program, and content processes be reviewed to identify ways to equalize PTAC for both groups.

Perceptions and Behaviors based around the COVID-19 Virus

Presenter: Nina Lewis; *Co-Presenter*: Brian Freebern
Mentor: Christopher Puglisi
Abstract: The study looked into the American population's perceptions and behaviors that have resulted from the outbreak of the COVID-19 Virus. Over the past few years, the outbreak has impacted society in many ways; from the media to our families. It has also impacted the way we view the government and health professionals. Our study consisted of a survey asking roughly 40 questions surrounding the COVID-19 coronavirus and choices made. We aimed to find any linkage between perceptions of how the virus was portrayed to each individual and what they decided to do based on this information. This study was conducted in collaboration with the Psychology Department at Pacific Lutheran University, to make sure we had a wide array of participants.

3:00 p.m. to 3:30 p.m.

The Role of PLK1 and its Interacting Proteins in the Development of Mitotic Defect-Associated Tumor Progression

Presenter: Andrew Nearbin
Mentor: Nicholas Quintyne
Abstract: Tumorigenesis is the process in which normal cells gain malignant properties. This progression is correlated with an abnormal number of chromosomes', a condition known as aneuploidy. These abnormalities arise by mitotic defects. Mitotic defects can be studied on a molecular level by examining kinetochore regulatory proteins. An example of regulatory proteins is the family of serine/ threonine kinases known as Polo Like Kinase (PLK). PLKs are associated with many roles that ensure proper cellular fidelity. One of the master controllers of normal mitotic progression is PLK1. PLK1 is observed to be mutated in many cancers which leads to poorer prognosis. Inhibition of PLK1 leads to mitotic blockage and induces cancer cells to undergo apoptosis. PLK1 interacts with various proteins such as dynactin (p27) to control proper chromosomal alignment and segregation in mitosis. Modulation of expression levels of p27 is a method by which we can better understand the contribution to mitotic spindle fidelity.

At the Intersection of the Arts and Sciences

Presenter: Allyson Hineman
Mentor: H. Joseph Straight
Abstract: At first glance, the arts and sciences may seem unrelated. The "Brain Dominance Theory" even suggests that one side of the brain is more dominant than the other; right-brained people are more artistic, while left-brained people are more analytical. When we take a closer look, music theory involves intricate mathematical concepts, ideas from physics appear in color theory with visual arts, and we can even relate human biology to dance and the performing arts. Can you find more connections? As a Dance and Applied Mathematics major, I have found ways to combine two seemingly separate disciplines into one project. Utilizing repertory data from two well-known ballet companies based in New York City, I will make various comparisons between the New York City Ballet and American Ballet Theatre. Through use of numerical and categorical data analysis, I will produce meaningful graphics while discussing statistically significant results.

Macrophage Extracellular Traps Contribute to Vascular Inflammation

Presenter: Caitlin Snyder; *Co-Presenter*: Mauliq Adesanya, Julia Watson
Mentor: Emeka Okeke
Abstract: Innate immune cells are the first line of immune defense and play a major role in the protection of the host by the killing of microbes through various mechanisms. Blood monocytes are derived from the bone marrow and eventually differentiate into macrophages in various tissues where they are involved in microbe elimination, tissue repair and maintenance of homeostasis. A newly identified mechanism by which macrophages kill microbes is by the release of extracellular traps. Extracellular traps consist of externalized cellular DNA that is decorated with antimicrobial proteins. Macrophage extracellular traps (METs) localize and kill microorganisms. However, METs contribute to the pathology of several autoimmune diseases. Therefore inhibition of these extracellular traps are of significant interest. In this work, we investigate the different methods of induction of METs. We explore molecular targeting of the products of METs, for the inhibition of the process as a potential therapy for autoimmune diseases.

Potato-derived peptide for the control of the immune inflammatory response

Presenter: Esmeiry Ventura Santana
Mentor: Emeka Okeke
Abstract: Acute inflammation is a normal physiological response that is necessary for the protection of the host from invading microbes. Food-derived peptides with anti-inflammatory properties have gained popularity due to their availability in the daily diet and limited side effects. 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. 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 peptide reduced and inhibited inflammation induced by lipopolysaccharide and has potential as an anti-inflammatory therapeutic.

Modeling Past Environment of Chautauqua Lake, N.Y. using Sedimentary Diatoms

Presenter: Autumn Fisher
Mentors: William Brown; Courtney Wigdahl-Perry

Abstract: Diatoms preserved in sediment are often used as a method of modeling the past environment of a marine ecosystem. The species of diatom present can indicate environmental factors such as temperature, nutrient content, mixing patterns, and many more. By retrieving a core sample of the diatoms in Chautauqua Lake sediment we recreated the past environment of the lake. The most abundant diatoms were Aulacoseira ambigua, Stephanodiscus niagarae, and Fragilaria construens. The patterns these diatoms present tell us the lake mixes often and is eutrophic. They can also give us an idea of how high the nutrients are in the lake from year to year.

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

Presenter: Sarah Slack
Mentor: Angela McGowan-Kirsch
Abstract: 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.

Hauntology Through the Lens of Critical Race Theory And the Creation of 'Other' as a Ghost

Presenter: Amber Ambrose
Mentor: Jeanette McVicker
Abstract: Through Derrida's idea of Hauntology we learn how to live with America's hard history. We must acknowledge the presence of the ghosts from our past and not ask them to change. A sanitized history does not allow us to live responsibly or justly and it only through this hospitable behavior that we can make change. Through Toni Morrison and the origin of the 'Other' as a ghost, we begin to see how Critical Race Theory draws attention to our ghosts, especially as they follow us to current events. The censorship of Critical Race Theory and the banning of books sanitizes our history. It puts lessons on the Civil War and stories of slavery under critical review. The creation of the 'Other' has followed us into the war on Ukraine where Black people and foreigners are seeing discrimination at the borders.

Statistical Analysis of Global Carbon Emissions

Presenter: William Davis
Mentor: Amber Powell
Abstract: Climate change has become one of the defining issues of our generation. The scientific community agrees that climate change is a cause for major concern, yet there is still much debate over the nature of future detrimental effects on our environment. The rise in emissions of carbon dioxide, a greenhouse gas that both absorbs and radiates heat, has escalated the urgency of the issue. Rapidly increasing rates of CO2 emissions globally has been linked to a rise in global temperature, directly contributing to climate change. CO2 emissions data has been accumulated by the United Nations Statistics Division globally, and has been analyzed here in an attempt to determine the true nature of the danger we all face. What should we expect if we continue to contribute to the increased rates of CO2 in our atmosphere? Can we reverse the damage we have already done? We seek to answer these questions and more.

Knockdown of NuMA in oral cancer cells to induce centrosome coalescence and prevent multipolar spindle formation

Presenter: Samantha Reed; *Co-Presenter*: Sarah Keast
Mentor: Nicholas Quintyne
Abstract: There are many microtubule-associated proteins that play a significant role in centrosome clustering. The Nuclear mitotic apparatus protein (NuMA) is critical to the formation of spindles and is highly expressed in some cancer cells. NuMA's main function is to ensure spindles form properly and maintain their structure. When NuMA is overexpressed it disrupts the microtubule motor cytoplasmic dynein and displaces it from the spindle. Previous work demonstrated that when NuMA protein levels are decreased by shRNA-mediated knockdown, the frequency of multipolarity will decrease significantly as dynein is restored to the spindle. The UPCI:SCC103 oral cancer cell line gives us an excellent model to study the mechanism of centrosome clustering due to its high level of NuMA and cells exhibiting supernumerary centrosomes. To date, Western blots have been conducted to determine if the knockdown of NuMA in UPCI:SCC103 cells by shRNA occurred. This process is still ongoing, but preliminary information has been obtained.

The determination of male Tenodera sinensis mating frequency through polymorphic microsatellite loci

Presenter: Colm Roster
Mentor: Scott Ferguson
Abstract: Tenodera sinensis is a species of mantis that engages in sexual cannibalism. In some cases, males make up a large part of the female diet during the breeding season. However, the evolutionary maintenance of this relationship is not fully understood. It may be evolutionarily beneficial for males to risk cannibalism if their probability of additional mating opportunities is low. The male mating frequency must be measured to better understand this sexual relationship. Paternity measurements can be done by the identification of polymorphic microsatellites. Probes were used to isolate microsatellites from T. sinensis genomic DNA. These microsatellites were screened to identify large DNA molecules which were sequenced. We are currently testing the genomic DNA of individual mantids to determine the allele frequencies 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.

The effects of carcinogens on viability of cancer cell lines relating to mitotic, and mitotic defect indices

Presenter: Emilia Driscoll
Mentor: Nicholas Quintyne
Abstract: The progression of cancerous tumors is correlated with increased incidence of errors during cell division, termed mitotic defects. Carcinogens are chemicals with the ability to cause cancer by interacting with a cell's DNA to induce genetic mutation. Specifically, Vinyl Chloride is used to cause disruptions in mitosis which increases the number of mitotic defects. In most cancer cells, there is a higher occurrence of mitotic defects resulting in genomic instability. We want to examine the effects of carcinogens on the viability of different cancer cell lines, related to the mitotic and mitotic defect indices. We hypothesize that cells with greater degrees of genetic instability, as evidenced by increased mitotic defects, will be more resistant to cell death promoted by our carcinogen. Through the use of cell culture, immunofluorescence staining, slide preparation, and cell viability screening, we will determine the viability of cells after carcinogen exposure.

Microaggressions from a Bystander's Perspective

Presenter: Erika Retzer
Mentor: Andrea Zevenbergen
Abstract: Microaggressions have been defined as acts of non-physical aggression such as verbal comments and non-verbal behaviors representing stereotypes, prejudice, and discrimination. Microaggressions may be unintentional and appear harmless but can have a harmful impact. The purpose of this study was to gain more insight into when and why people who are bystanders choose to confront perpetrators of microaggressions. Participants were asked questions regarding being a bystander to a microaggression occurring towards another individual. The data were collected through Zoom interview sessions with participants. The sessions were recorded on an analogue tape recorder and the data will be analyzed using a mixed-methods approach, using both qualitative and quantitative strategies. The results of this descriptive study and conclusions will be discussed in this poster presentation.

Curriculum of Fredonia Academy

Presenter: Erin Hibbert
Mentor: Mary Sievens
Abstract: Before SUNY Fredonia was ever a college or even a normal school, it started as an academy in 1826. In Antebellum America, education was rapidly becoming a major part of life in the New Republic. During the time of its existence, from 1826 to 1866, the Fredonia Academy was a center of learning for teenagers all over Western New York. This paper focuses on the curriculum that was being taught to the students, looking through the lens of which textbooks were being used. The curriculum and textbooks reveal what education was like during this time period in American History.

3:30 p.m. to 4:00 p.m.

Multi-Method Approach to Understanding Harmful Algal Blooms in Chautauqua Lake, NY

Presenter: Madison Miller; *Co-Presenter*: Kasey Crandall
Mentor: Courtney Wigdahl-Perry
Abstract: Chautauqua Lake, located in Chautauqua County, New York, suffers from harmful algal blooms (HABs), an overgrowth of algae that prevents normal use of the lake and may become toxic to humans. A common cause of HABs is the presence of excess nutrients, usually Phosphorus or Nitrogen, but sometimes Iron. To determine if Iron may be limiting algal growth in this lake and if there may be an internal source of nutrients in the lake, nutrient limitation experiments were conducted in conjunction with high-frequency monitoring of lake temperatures. Temperature patterns within a lake can have effects on how nutrients such as Phosphorus and Iron cycle through the system. Results showed that Iron is not a major limiting nutrient in this system but new temperature patterns were identified. In combination, this data will help determine the cause of HABs and if some excess nutrients may be originating from the lake itself.

Trends in Diagnosed Diabetes in American Adults (18+) from 2000-2019

Presenter: Rachel Lynds
Mentor: Amber Powell
Abstract: The diagnosis of diabetes in American adults, ages 18 and older, has been steadily growing over the past two decades. How do other factors, like gender and ethnicity, correlate to the increase in diabetes diagnoses across the age groups included in this data? What else might play a part in the unsettling growth of this disease? The statistical analysis of the age ranges, genders, and ethnicities of the national percentage of adults diagnosed with diabetes each year between 2000 and 2019 was evaluated. The linear regression of the percentage of diagnosed diabetes of each age range was created in comparison to gender and ethnicity. The data utilized in the analysis was collected from gis.cdc.gov.

Synthesis of Copper and Nickel Complexes for Capture of Nitric Oxide

Presenter: Brandon Landis
Mentor: Allan Jay Cardenas
Abstract: In this study, copper and nickel complexes of 1,5-di(4-phenyl)-3,7-diphenyl-1,5-diaza-3,7-diphosphacyclooctane (P2N2), pyridine diimmine (PDI) and pyridine diamide (PDA) were synthesized and characterized. The reactivity of the complexes towards nitric oxide were evaluated. Ni0(P2N2)2 and Cu(II)PDA are able to capture nitric oxide.

Synthesis of rhodium mononuclear phosphine complexes for development of heterogenous catalyst for hydrogenation

Presenter: Sadie Olrogg
Mentor: Allan Jay Cardenas
Abstract: In this study, different mononuclear phosphine complexes were synthesized and characterized. Rhodium complexes were then deposited in solid support such as titania. Preparation and optimization of the deposition will be presented as well as preliminary characterization data on the successful deposition of rhodium complexes in solid support.

Range of Motion and Force Production in Dancers

Presenter: Charles Fuller
Mentor: Todd Backes
Abstract: A comparison between dance majors at SUNY Fredonia and people who are not dance majors, was made to see the difference in range of motion and force production. The testing done attempted to look at the direct or indirect relationship with range of motion and force production within the two populations. These properties were tested in both hip and knee joints. The Biodex was used to collect data for both range of motion and force production. Each dance major followed the same procedure developed. The procedure consisted of a self-warm-up, and then standard Biodex procedures. Slight adjustments were made to the Biodex for each joint structure.

Fredonia Enactus: Bootcamp and Early Stage Competition

Presenter: Kathryn Smith; *Co-Presenters*: Josue Petion; Christie Ackendorf; Michael Andalora; Julia Wilkinson; Abigail Goetz
Mentor: Susan McNamara
Abstract: Fredonia Enactus created a new project aiming to help freshmen coming into college. Bootcamp is a series of workshops that will enable students to make a seamless transition from high school to college. This idea came to us after seeking the opinions of fellow freshmen and sophomores on how prepared they had felt when coming to college. After a few rounds of focus groups and pilot workshops we opted to move forward with the three topics we felt were the most essential: Mental/ Physical health, thriving in a dorm setting, and financial literacy. Our goal is to educate students on some of the tools and skills they can use to be better equipped for the inevitable trials and tribulations that life has in store for them. Bootcamp is looking to scale our project by implementing the workshops on campus as a form of freshman orientation with help of Fredonia Admissions.

Metamorphic conditions of a garnet-bearing gneiss from the high-pressure belt, western Grenville Province

Presenter: Sarah O'Leary
Mentor: Wentao Cao
Abstract: A migmatitic gneiss from the high-pressure belt in the Grenville Province is examined to determine its metamorphic conditions. The gneiss, collected ~16 km NW of Mattawa, Ontario, contains garnet, quartz, amphibole, K-feldspar, plagioclase, biotite, rutile, zircon, allanite, apatite, titanite, and ilmenite. Garnet contains inclusions of quartz, amphibole, K-feldspar, plagioclase, allanite and zircon. Accessory apatite, rutile, titanite, iron oxides, and ilmenite occur in the matrix. Garnet displays a homogenous core in calcium and iron, with minor zoning of magnesium toward the rim. Phase equilibrium modeling along with garnet isopleths indicate P-T conditions of 15.4 kbar, 715 ℃. The estimated conditions are consistent with previous studies, which indicates that felsic gneiss and retrogressed eclogite were a coherent unit that exhumed from the lower crust. U-Pb dating of titanite and zircon will be conducted to determine the ages of the metamorphic processes.

Clustering Made Easy: A Look Into Grouping Seemingly Unrelated Census Data

Presenter: Ryan Plumer; *Co-Presenters*: Allyson Hineman; Matthew Barton; Kampbell Howard
Mentor: Lan Cheng
Abstract: Our work was done in collaboration with Dr. James Livsey of the U.S. Census Bureau. We took time series data released from the Economic Directorate to analyze correlations between differing industries. Using these newly-found correlations, we were able to make suggestions to analysts on which series should be jointly modeled. This was done with the intention of adjusting data in a multivariate manner, as opposed to the univariate way that data is analyzed now— such as seasonally adjusted data around holiday time each year. Examining in a multivariate fashion allows better approximations for data, as well as takes other trends into account to relate industries to one another.

Acceptance of Interpersonal Violence, Risky Behavior, and Sexual Orientation as Predictors of Sexual Aggressiveness

Presenter: Amber Meli*; Co-Presenter*: Samantha Sibert
Mentor: Darrin Rogers
Abstract: Sexual aggression causes harmful physical and psychological effects. Both risk-taking behavior and acceptance of interpersonal violence (AIV) are established predictors of sexual aggression. Past research shows that homosexual men tend to display higher average levels of risk taking in adolescence, possibly due to experiences of victimization in childhood. Given the link between risk taking and AIV, homosexual men could be at increased risk for sexual aggression. An online survey was administered to students at a liberal arts focused university in

northeastern USA, and Hispanic Serving institution in the US-Mexico border region. There were 81 male participants (10 identifying as queer). Variables included self-reported gender and sexual orientation, AIV, responses to a risk-taking scenario in a simulated social situation, and scores on a measure of potential sexual aggressiveness. Implications for future research will be discussed.

The Effect of Health Insurance in the United States

Presenter: Tiffany Denault
Mentor: Amber Powell
Abstract: Health insurance is a big deal in the United States with numerous problems: uneven coverage, high costs and race. These are all possible factors explaining why people struggle with getting health insurance. The truth is that there is no uniform or universal healthcare coverage in the United States. What can this limit in healthcare lead to? Increased risk of cancer? Lower overall and physical health? Maybe even increased usage of alcohol? These are things that can affect a person long-term and be the cause of severe health concerns. To understand the risk of the health insurance issue on these illnesses as well as the overall health of those in the United States, I looked at data collected from people who did and did not have health insurance and performed statistical analysis. The data is from Behavioral Risk Factor Surveillance System Report of 2015.

Effects of Sung and Spoken Production of Intervocalic /l/ on Formant Frequencies

Presenter: Reese Holahan
Mentor: Bridget Russell
Abstract: Objective: The purpose of this study is to investigate acoustical differences between sung and spoken American English intervocalic /l/'s. Comparisons of F1 and F2 values across /l/ productions by speakers of American English will be investigated. Background: Vowel modification and formant tuning by classical singers to adjust resonance has been investigated. Few studies focus on the singer's manipulation of consonants to optimize resonance. Semi-vowels, especially the lateral /l/, are acoustically similar to vowels. Dark and light allophones of /l/, differ in F1 and F2 positioning providing a potential for /l/ to be incrementally manipulated by singers. Method: Subjects include American English speaking classically trained singers aged 18-40 years. Subjects spoke and sang 22 phrases containing /l/ embedded between identical vowels. Participants spoke and sang each phrase three times using a comfortable mid-range voice. F1 and F2 frequencies were measured and compared at the midpoint of each /l/.

Live Performances

S204 ABC, Williams Center

1:00 p.m. to 1:30 p.m.

Rhythm of Life

Presenter: Mikayla Johnson; *Co-Presenter*: Desiree VanDyke; Allyson Hineman; Ashley Anderson; Eleanor Fish
Mentor: Paula Peters; Anthony Alterio
Abstract: "Rhythm of Life" revolves around the varying rhythms of life and the concept that everyone reacts to life's events differently. We all have our own pace and choose our own rhythms. Rhythm is usually associated with movement yet is experienced daily inside of us. My piece explores the different rhythms in life through movement in relation to finding a connected flow. The rhythms in life are translated through conversations of rhythms in dance. Events happen in life out of our control, and how it affects us internally is investigated here. This has me questioning, "What happens when these internal rhythms become disrupted?" and more specifically, "How does it feel when this disruption occurs, and/or how will it inform a new building of rhythm?". Most recently, the pandemic has shifted our rhythms, and so this piece follows that process of building new rhythms.

Glitch

Presenter: Emma Voit; *Co-Presenters*: Alaysia Jourdain; Virginia Raffaele; Kory Randles; Gianna Dobrich
Mentor: Anthony Alterio
Abstract: Glitch is a dance exploration on gender through the lense of technology. Like technology, the system of gender is fallible and prone to breaking. The binary isn't a sustainable machine, as the gender experience is not always one option or the other. Glitch offers a perspective on what happens when gender meltdowns.

Oral Presentations

G103 A&B, Williams Center

1:00 p.m. to 1:30 p.m.

Animation & Illustration Club, MoCCA Trip 2022

Presenter: Penn Mant; *Co-Presenter:* Donald Marotta
Mentor: Alberto Rey
Abstract: A group of students from the SUNY Fredonia Animation and Illustration Club spent the weekend of April 1st-April4th down in New York City exhibiting at the MoCCA Arts Festival. It was an opportunity to sell their works, promote their skills and network with fellow artists, and draw attention to SUNY Fredonia's talented students.

1:30 p.m. to 2:00 p.m.

Coming To America: An Exploration of Immigration

Presenter: Barbara Colt
Mentor: Ivani Vassoler-Froelich
Abstract: With globalization resulting in the increased movement of people around the globe, immigration has become a significant issue in most developed countries. In the United States, immigration reform has been at the center of large public demonstrations and sustained political debate. Numerous research is done on political attitudes toward immigration often pits arguments emphasizing economic inequality, demographics, or cultural explanations. My research focuses on Presidents who served from 1985-to 2016. In addition, I will explore likely explanations of what motivates and influences Congress to vote for or against immigration. I will advance the debates on the determinants of immigration policy by showing that economic inequality and cultural explanations can be powerful, depending upon the type of immigration policy under consideration. Jorge Ramos, 2013 said it best "The greatest nations are defined by how they treat their weakest inhabitants".

Field Guide to Butterflies

Presenter: Ashley Halm
Mentor: Michael Sheehan
Abstract: "Field Guide to Butterflies" is an digital interactive braided essay that draws on autotheory and hypertext for its content and form. It 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. It is at once a commentary on gender politics and queer theory, and an exploration of diary, memoir and storytelling as literature. Every reader's experience of the text 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.

2:00 p.m. to 2:30 p.m.

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

Presenter: Gabrielle Corvest
Mentors: Ivani Vassoler-Froelich; Ignacio Sarmiento Panez
Abstract: 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 goal 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.

Digital Stage Managing

Presenter: Autumn Roza; *Co-Presenter*: Karlie Robinson
Mentor: David Stellhorn, Czerton Lim
Abstract: We attended the Southeastern Theatre Conference in Memphis Tennessee where we met with professionals in the Stage Management field. We sat in on sessions where we took in information on how to be a Stage Manager in a digital world. Paper is no more when technology makes our jobs easier! While they are a newer tool, there is a large shift from paper to digital prompt scripts and many programs and apps are on the market. Not all of them are effective, but the ones that are effective are worth the small price they might be. Along with prompt scripts, apps can help with scheduling, line notes, meeting notes, sign- and out, and so much more. We have experience stage managing digitally, and attending this conference we have been able to combine our own experience with professional research!

2:30 p.m. to 3:00 p.m.

Honor's Photo and Event Intern Experience

Presenter: Sage Brandt
Mentor: Natalie Gerber
Abstract: Professional Lessons Learned: On content: * How to frame photos and tell stories through photos; * Why photo releases and origin of images are essential to the promotion of an organization; * What to decide to shoot based on organizational goals * How to develop solutions for issues that arise and how to present the issues and proposed solutions to decision makers On general professional behaviors: * How to complete tasks when execution requires the consent/participation of individuals in different roles and departments * How to communicate clearly and effectively through email correspondence

3:00 p.m. to 3:30 p.m.

Lossless JPEG Compression

Presenter: Joshua Loney; *Co-Presenter*: Cameron Showard
Mentor: Ziya Arnavut
Abstract: The purpose of this study is to analyze the lossless JPEG image compression technique that was originally proposed in 1994. Image compression is the process of sizing down the image in binary format and saving a significant amount of free space and saving transmission time when the image is transmitted over the network. Big name companies such as Meta, YouTube, Instagram, and many more use some kind of lossy or lossless compression techniques to provide the user the ability to upload images in the most efficient way. There are several ways in which we can compress an image. Usually an image is decorrelated using predictors before an entropy coder, such as Huffman coder, is applied. In this work, we use the predictors proposed in JPEG for lossless compression of images.

3:30 p.m. to 4:00 p.m.

Words from the Abyss

Presenter: Cruise Hawkes
Mentor: Michael Sheehan
Abstract: Words from the Abyss is a collection of poetry that revolves around themes of trauma, abuse, and abandonment and how they play a role in our personality and worldview. Many of the pieces in this collection feature a wide use of form to bring unique lyricism and voice to familiar situations and emotions that may be for many people, indescribable. Some of these pieces tell full stories, and some tell feelings of fleeting moments. My style throughout this collection has been influenced mainly by two beat generation writers, Ginsberg and Burroughs, who showed great skill in their composition and willingness to describe harsh realities.

Power Poems for Giraffes

Presenter: Katherine Benatovich
Mentor: Kate Mahoney
Abstract: Power Poems for Giraffes is a multilingual social emotional resource - a book + Connection Cards + website resources including audio versions of the poems in different languages, free printables such as a glossary and mental health supports - for educators / parents / students. I created this with a small team of experts and new skills learned on the MED TESOL course. The focus is on using home languages and translanguaging pedagogy to enhance new language output for language learners and building resiliency. Especially beneficial for students whose home language is not English and who are learning English as a new or second language. Power Poems for Grades K-5 and is planned as part of a series: Power Poems for Lions (Middle School), Power Poems for Penguins (High School), and Power Poems for Butterflies for adults. A donation from the sale of each book goes to an orphanage in Uganda and to a local skatepark.

ENGL 400 Class Project

"The Weight of History: How We Are Haunted by the Past"
ENGL 400 Senior Seminar Final Collaborative/Community Engagement Project
Spring 2022

This Spring 2022 section of ENGL 400, Senior Seminar was designed and taught by Dr. Jeanette McVicker. Our theme for the semester was "Hauntings", a concept theorized by Jacques Derrida in his book, Spectres of Marx. This theme was chosen to allow our class to be more conscious of the way we engage with history, memory, and space, and the way past trauma "haunts" our present and shapes contemporary experience.
Derrida writes, "It is necessary to speak of the ghost, indeed to the ghost and with it, from the moment that no ethics, no politics, whether revolutionary or not, seems possible and thinkable and just that does not recognize in its principle the respect for those others who are no longer or for those others who are not yet there, presently living, whether they are already dead or not yet born."

This passage can help explain the concept of Hauntology that Genevieve Adams, Amber Ambrose, Kaley Bonner, Charmaine Caban, Ethan Dybowski, Jeffrey Gardner, Abby Hart, Megan Munro, Tasha Platt, Lydia Turcios, Dominic Vasapolli, and Olivia Walker had to learn to understand throughout our course. Through the literature discussed: Virginia Woolf's Jacob's Room, Toni Morrison's Beloved, Valerie Luiselli's Lost Children Archive, Layli Long Soldier's Whereas, and Colson Whitehead's The Underground Railroad, our class has gained a better grasp on the concept of Hauntology, and the ways in which we can directly speak of, to, and with "the ghost" in order to heal from the haunt.

Students composed research individual posters to express their understanding of the course themes and texts, which became a collaborative exhibit in Reed Library in May. Together with these research posters, students also painted healing stones to represent their personal journey over these past four years as graduating seniors, and displayed these stones with tags in a case near the poster exhibit. Together, the stones and the posters reflect personal and shared communal loss and the ways in which the humanities offers students intellectual and creative understanding of shared human experiences, opportunities to heal, and the ability to pose solutions to persistent social problems including war, genocide, and racism.