



IGNITE

ST. THOMAS AQUINAS COLLEGE
**9th ANNUAL ART, DESIGN &
SCHOLARSHIP EXHIBITION**





Ignite your curiosity. Ignite your imagination.

Welcome to Ignite, St. Thomas Aquinas College's Ninth Annual Art, Design, and Scholarship Exhibition. Ignite is a celebration of our undergraduate and graduate students, their original research, and their creativity from multiple disciplines across campus. The scope of the presentations featured showcase the outstanding caliber of our undergraduate students at St. Thomas Aquinas College. We hope that this exhibition will ignite the passion for discovery and ingenuity in all of our students for years to come.

The projects on display also demonstrate the ongoing commitment of our faculty to supporting undergraduate research. As is true of the faculty advisors who support them, these students and their work hold the potential to contribute positively to the world. Each of these students has benefited from mentoring provided by exceptional faculty. We thank the faculty for their efforts on behalf of these students.

We encourage you to share in this showcase as you visit the poster presentations and portfolios, and read the collection of abstracts included in this program and at stac.edu/ignite.

Organized and curated by

Members of the Ignite 2024 Committee:

Professor Nina Bellisio, Professor Kimberly Burns, Dr. Meghan DeWitt, Dr. Pamerla Derfus,
Dr. Staci Shultz, Dr. Tracy Tully, Dr. K. Emma Emanuel, and Dr. Richard Heath

Special thank you to Annie Lombardi and the Office of Campus Communications

IGNITE: 8th ANNUAL ART, DESIGN & SCHOLARSHIP EXHIBITION

April 25, 2024

The “CSI Effect”: Fact vs. Fiction

Presenter: Jennifer Stevens

Faculty Advisors: Dr. Clara Toth, Professor of Biology

Forensic science has been growing in popularity in recent decades due to the emergence of many television programs that are based on criminal investigations. Shows such as “CSI: Crime Scene Investigation” and its two sequels, “CSI: NY” and “CSI: Miami”, have led the way in introducing this fascinating field to the general population. Because of these types of programs, a phenomenon known as the “CSI Effect” has developed which involves the growing expectation that crime scenes will reveal any and all forensic evidence that can be analyzed by experts through forensic science and elaborate technology. This phenomenon has shown that while forensic-based TV series may often provide false narratives for dramatic effect, viewers believe it to be plausible in real life. Based on my experience interning at Rockland County Medical Examiner’s Office (RCMEO), multiple misconceptions propagated by these TV shows can be debunked.

Unraveling Fibronectin’s Role in Cancer Using Yeast

Presenter: Eliza Doba

Faculty Advisor: Dr. Stephanie Lauer, Assistant Professor of Biology

In the enormous field of cancer research, where every new finding provides a means of understanding, the role of extracellular matrix (ECM) proteins and cell-cell adhesion is a source of fascination and promise. Recent developments in the field have brought to light the critical role that the multifunctional extracellular matrix protein fibronectin plays in coordinating cellular interactions within the tumor microenvironment. The full scope of fibronectin’s functions in cancer remains unknown, shrouded in the mysteries of

its molecular intricacy. In this research, the budding yeast is used as a model to probe the unknown depths of fibronectin's role in cancer pathology. Yeast can be "humanized", giving these simple single-celled organisms traits that are similar to those of mammals. Models of humanized yeast serve as a link between controlled research and intricate biological systems. Establishing a basic knowledge of yeast cell-cell and yeast cell-substrate adhesion is the first stage in the study process. After creating a baseline, we clone a mammal fibronectin protein domain into yeast to gain an understanding of the fundamentals of fibronectin. Next, we can induce fibronectin production in yeast and examine the effects of this protein on cancer. This study may result in improved understanding of how cancer spreads as well as innovative treatment strategies.

A Consideration of Clinical Laboratories

Presenter: Logan Jones

Faculty Advisor: Dr. Clara Toth, Professor of Biology

Helen Hayes hospital is a rehabilitation hospital with a bed size of 155. The clinical laboratory within the hospital runs blood tests and other tests to better care for patients admitted to the hospital. Much work goes into running a clinical laboratory effectively and efficiently when performing blood tests. Failure rates and errors must be mitigated when dealing with patient's who's well being depends on correct and accurate analysis. The analysis of samples is carried out with various machines such as the Siemens EXL 200 Chem Analyzer. To ensure accurate results steps must be taken such as calibrating analytical instruments, applying proper techniques, and keeping up with advancing science and technology. Certification bodies such as the College of American Pathologists provide accreditation to laboratories who are able to maintain these conditions and provide a quality testing in a clinical setting.

Effective Strategies for Promoting Civic Education and Its Importance!

Presenters: Stephanie Cuevas and Paige Lazzara

Faculty Advisor: Dr. Elizabeth Finnegan, Professor of Education

This study provides an analysis about the key role Civic Education plays within contemporary educational systems, emphasizing the value of helping students develop an awareness of civic engagement and global citizenship. Many current institutions push forward the need for citizens to grasp their potential for creating positive societal change amidst social, economic, and environmental challenges. Through research that covers a variety of instructional techniques and curriculum, our investigation examines the success of educational strategies in fostering community involvement and responsibility among



BIOLOGY
Minor in Visual Art

Veronica Vuelva

students. In order to gather data, multiple public school teachers were interviewed in order to learn more about their lesson plans on civic education as well as their own perceptions of its worth and influence. The results provided insight into methods for raising knowledgeable, skilled students who may spark significant social change.

Educational Attainment by Race and Poverty Levels

Presenters: Bruktawit Abebe and Karla Zamora Guzman

Faculty Advisor: Dr. Andrew Lee, Professor of Mathematics

In the United States, women are more susceptible than men to experience living in poverty. More so, women of different races are impacted disproportionately, even taking into account the educational level they have achieved. In a report released by the Institute for Women’s Policy Research, it’s stated that black women are more likely than that of White, Hispanic, and Asian women to experience poverty (PovertyandOpportunity, 2023). Our project highlights whether the attainment of a high school diploma influences the amount of women living below the poverty level. The variables picked are centered around New York City due to the city’s large population. This allowed us to have more data to work with in the comparison of the chosen variables. In addition, this abundance in information allows for a more accurate picture of the data and variable comparisons. Four categories were used to group women based on their racial and age group as follows White women (25-34 years), Hispanic women (25-34 years), African American women (25-34 years), Asian women (25-34 years). This research was conducted by utilizing the programming language R for statistical computing and graphical representation. By making use of scatter plots and comparing each variable to a standard, we were able to conclude that there is a strong correlation between education attainment and poverty level in all four groups of women.

The Role of Modern Technology in Solving Criminal Cases in the 21st Century

Presenter: Caitlynn Chanat

Faculty Advisor: Dr. Clara Toth, Professor of Biology

The Cyber Crimes Unit (CCU) of Bergen County, NJ is made up of specially trained sworn law enforcement officials, civilian agents, and prosecutor staff. It manages the complex web of electronic tools and services and assesses their influence on criminal investigations. The on-site Digital Forensic Lab (DFL) processes electronic devices as one of its divisions for analysis such as cell phones and computers using extraction software.

An Explorative Analysis and Experiment on Tree Pinhole and Solar Eclipses

Presenters: Lilah Magenheimer and Grace O'Hara

Faculty Advisors: Dr. Heather Rave, Professor of Biology; Dr. Meghan DeWitt, Associate Professor of Mathematics

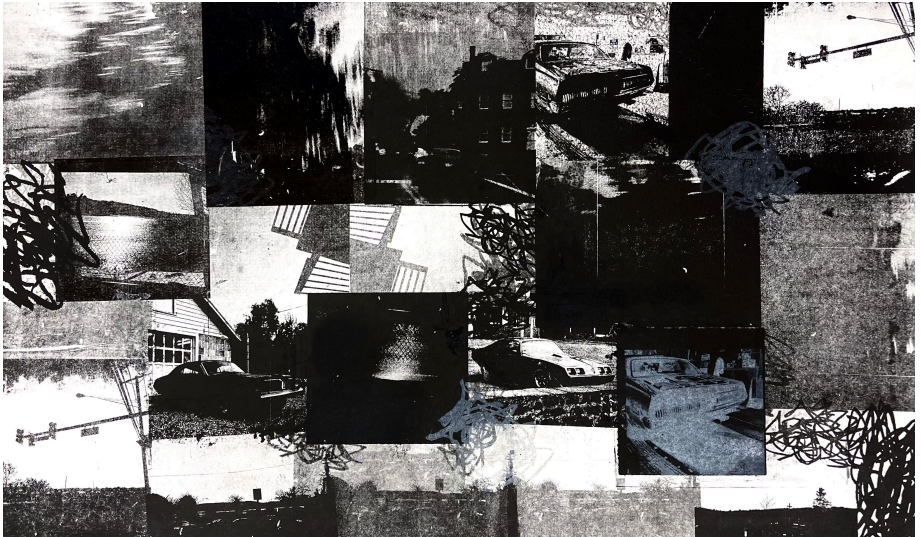
A solar eclipse is a phenomenon which occurs only a few times in one's life. A solar eclipse occurs when the Moon's orbit comes in between the Sun and the Earth, resulting in the Moon's shadow being cast onto Earth. The research conducted in this experiment pertains to tree pinholes during a solar eclipse. When a solar eclipse occurs pinholes in the leaves of trees will cast an image of the Sun onto the ground. Data will be collected, recorded, analyzed and connected to history in order to fully understand this phenomenon. The data collected for the experiment was taken during the 2024 solar eclipse, and witnessed in Rochester, New York. A pinhole camera was constructed to compare the reflection of real tree leaves and artificial leaves and a colander. Results suggested that the colander had the most successful results, but all of the materials exhibited some sort of pinhole image. Tree pinhole experiments prove useful to capture the movement of the sun over the span of the solar eclipse and add to the collection of evidence for scientific research.

Biofuel Production of Yeast

Presenters: Erin Bacalles, Karolina Jaruseviciute and Joseph Henion

Faculty Advisor: Dr. Stephaie Lauer, Assistant Professor of Biology

In order to decrease reliance on fossil fuels, scientists are investigating the use of materials from the environment that are less harmful. Biodiesel is a favored alternative due to its higher energy density, lower recovery costs, and lower toxicity. One strategy is to produce biodiesel using microorganisms, such as the budding yeast. For example, budding yeast can be genetically engineered to produce large quantities of the fatty acid, octanoic acid. However, high levels of octanoic acid may inhibit the growth of yeast cells due to its toxicity. A baseline for yeast octanoic acid tolerance can be established similarly to testing ethanol tolerance in yeast. Yeast cells were grown in liquid media with the following concentrations of ethanol: 4%, 5%, 6%, 7%, and 8%. It was observed that the best growth occurred in 4% and 5% ethanol, with some growth in 6% and 7%, and no growth in 8%. Next, we will investigate the growth of yeast on solid media. If this research proves to be successful, on either the liquid, solid media, or both, it can be used to identify the toxicity threshold for octanoic acid in budding yeast. Exploring further manipulations of the octanoic acid biosynthesis pathway may enable us to investigate efficient methods of biodiesel production.



VISUAL ART
Minor in Psychology and Spanish
Madelyn Delia

Movie Genre Preference and Levels of Sensation Seeking

Presenter: Shaniah Alago

Faculty Advisor: Dr. Richard F. Heath, Professor of Psychology

Research explored the relationship between movie genre preferences and levels of sensation seeking. A total of 58 subjects were recruited by students of the Psychology and Film course in the Fall Semester of 2023 at St. Thomas Aquinas College. Subjects ranged from ages 18 to 57. Subjects were instructed to complete a questionnaire measuring sensation seeking and a movie genre survey. The college students who recruited subjects scored each questionnaire and survey. Data analysis found gender differences and significant relationships among the variables. Possible limitations were also discussed.

94 year old resident with Alzheimer's Disease engaging in the TTAP Method over eight weeks

Presenter: Lilly Essmann

Faculty Advisor: Dr. Linda Levine Madori, Professor of Therapeutic Recreation

I conducted this research as part of the Therapeutic Recreation Research Methods 407 course at St. Thomas Aquinas College. Over a duration of eight weeks, I engaged in individualized therapeutic interactions with a female, Resident M who is 94 years old diagnosed with mild Alzheimer's Disease at the Promenade Blue Hill in Pearl River, New York.

During these structured therapeutic thematic sessions, I administered comprehensive pre and post questions addressing domains such as cognitive functioning, sociability, mood, memory, and relaxation. Each session commenced with a guided meditation I facilitated, was followed by a themed therapeutic recreation activity involving active participation from both the student and resident. Preceding and subsequent to each session, I conducted thorough assessments through a series of five targeted inquiries, assessing the residents' mood, cognition, memory, and relaxation levels. Residents were instructed to provide self-assessment ratings on a standardized scale ranging from 1 to 10 during both pre and post-session evaluations. My results of the eight-week program, Resident M demonstrated notable improvements in physical, social, emotional, and cognitive capacities. These advancements were directly correlated with positive shifts in the resident's mood following each session. All resident data will be presented in graphs below.

Flash Spectrum: A Study And An Experience

Presenters: Laura Lacker, Sean Quick, Gabby Ortiz, Gianna Ortiz and Dominic Colleluore
Faculty Advisors: Dr. Heather Rave, Professor of Biology; Dr. Meghan DeWitt, Associate Professor of Mathematics

On earth the total eclipse of the sun allows the human race to discover more and more about the universe they live in. The flash spectrum is one of these occurrences that humans have started to study. This investigation works to compile information on the flash spectrum and its history to be able to better understand and study it during the April 8th 2024 eclipse. There were several different studies done after its discovery that were used to glean a complete understanding of it. The most important factors needed to have a complete understanding of the flash spectrum are: what is a spectrometer, the history behind the flash spectrum, the overall scientific background and what did the flash spectrum help expand scientific knowledge on. In conclusion the flash spectrum is a complex astronomical process which allows for scientists to get a better understanding of the wider universe. This investigation contributes to the advancement of complete scientific studies that explain all concepts in complete, allowing students and people of all backgrounds to have a better understanding of the universe around them.

Speech-Language Treatment For Middle Schoolers with Autism

Presenter: Liliana Kramer

Faculty Advisor: Dr. K. Emma Emanuel, Assistant Professor of Biology

Autism Spectrum Disorder (ASD) is characterized by difficulties with social interactions, communication, and repetitive behaviors. A commonality across children diagnosed with autism is difficulty with understanding language and how to correctly use it. It is especially difficult for children with autism to understand social cues and conversational implications. This aspect of language is referred to as the pragmatics of language. It is crucial that children with autism are diagnosed as young as possible, so they can be referred for treatment options that will benefit them the most, giving them the best possible outcome. The focus of this research is to help clients with autism, ages 10 to 12, by providing strategies to understand the correct usage of language. Treatment can be provided by many professionals, but this research focuses on the treatment used by Speech-Language Pathologists (SLP). After extensive research and observations at Cornerstone Speech and Language Center, it is concluded that treatment options vary depending on the child.

A specific treatment option that is shown to be successful is the Visual Immersion System (VIS). VIS is a broad system which targets social language and conversation, play skills, and challenging behaviors that hurt participation in social settings. Through this system, interventions such as working on small talk, rule-based game play, conversational turn-taking, and personal space boundaries are greatly improved.

The Effects of Combined Virtual Reality and Physical Movement on Learning and Engagement

Presenters: Nanabanyin Abbiw, Shaniah Alago, Robel Beyene, Dominic Colleluore, Ethan Dural, Ciara Durcan, Thomas Kroll, and Bitania Yonas

Faculty Advisors: Dr. Robert Vermilyer, Professor of Computer Science; Dr. Bianca M. Wentzell, Associate Professor of Biology; Dr. Suzanne Reynolds, Professor of Education

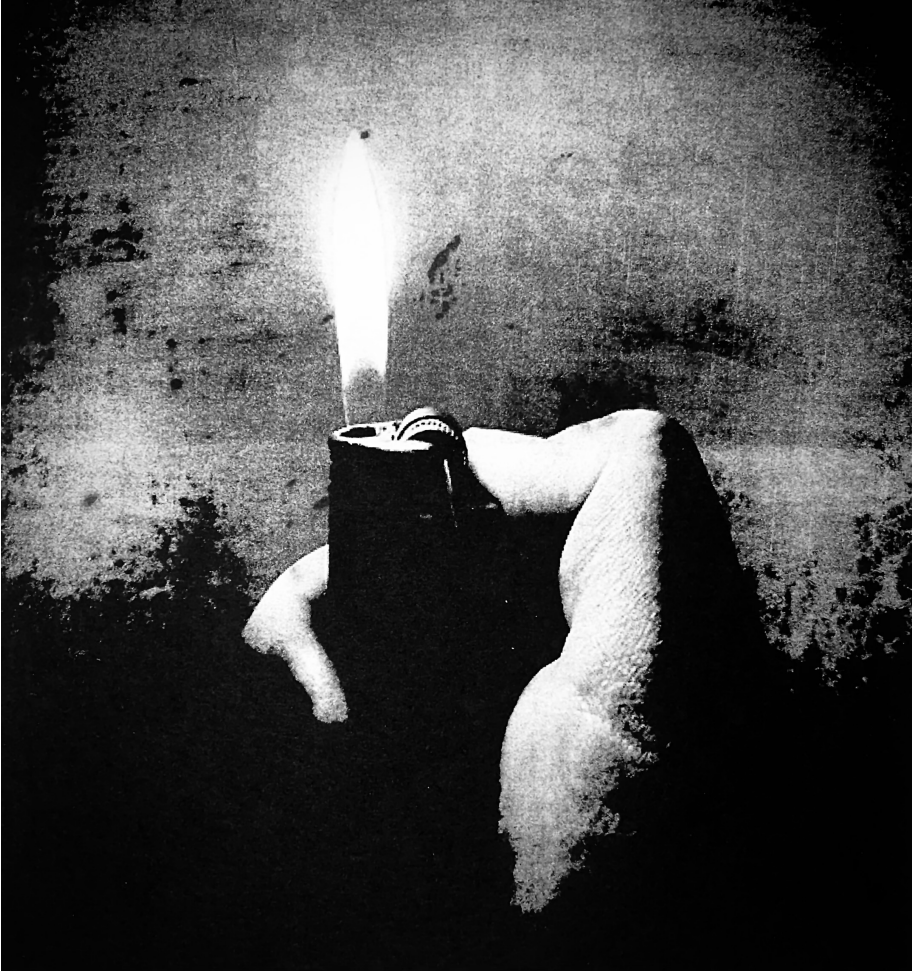
This study examines the combined effects of virtual reality and physical movement on learning and engagement in college students. To do this, our team created a virtual reality environment and an audio explanation to teach about the causes and effects of harmful algal blooms, and also obtained a recumbent bicycle for low-level physical movement. The virtual reality environment was created with Unity (cinemachine) and Visual Studio Code and allows learners to be fully immersed in an outdoor site on a golf course containing a lake impacted by harmful algal blooms. The virtual reality simulation includes both above water and underwater components. College student subjects will be randomly assigned to five conditions: audio, audio + virtual reality, audio + physical movement, audio + virtual reality + physical movement, and control. Subjects will complete a pre- and post- questionnaire measuring their learning and engagement on the material presented. It is hypothesized that being immersed in a virtual reality experience while performing physical movement will significantly enhance learning and retention compared to the audio only way of learning. It is also hypothesized that the combination of audio + virtual reality + physical movement will significantly enhance engagement.

Recreational Therapy Domain Study

Presenter: Jaden Smartt

Faculty Advisor: Dr. Linda Levine Madori, Professor of Therapeutic Recreation

As a therapeutic recreation major I recently participated in a research project where I was paired with a resident at the Promenade at Blue Hill in Pearl River NY. I was paired with a 70 year old man who is experiencing mild aging cognitive impairment who self-selected himself to participate in activities once a week for an hour. These Therapeutic Recreation sessions took place over an 8 week period.



VISUAL ART

Stephanie Carpenter

Residents attended each session and were given pre and post questions based on mood, learning and understanding, relaxation, reminiscing and interactions. My data collection indicates that my resident increased social, emotional and cognitive levels.

The gentleman I worked with had a significant increase in his mood after every single session. The resident would constantly say that they couldn't wait for the next meeting and that these activities bring brightness to their day. The resident often had life situations that brought him down emotionally, though each session he got better and will demonstrate with graphs listed in poster presentation.

The Impact of Diverse Books for Elementary School Students and Teachers of Color

Presenter: Shameka Richards and Alexandra Boyd

Faculty Advisor: Dr. Cassie Lo, Assistant Professor of Education

As teachers, it is important to diversify classroom libraries because they promote representation of their students and the surrounding communities and cultures, thus furthering connections between real life and the classroom. Diversity within classroom libraries allows students to read about perspectives that may differ from their own which can translate into navigating peer relationships in the classroom. We would like to design a bookshelf for the third to fifth-grade range.

In the last five years, there have been several diverse books published such as: "Ty Travels: Lab Magic" by Kelly Starling Lyons, "Friends Are Friends, Forever" by Dane Liu, "Tia Fortuna's New Home: A Jewish Cuban Journey" by Ruth Behar, "You Are Not Alone" by Alphabet Rockers, and "You Have A Voice" by Vera Ahiyya. As future teachers of color, we hope to create an environment where our students feel represented, heard, and safe. We hope to create a classroom culture of acceptance and celebration for each student's diversities, that will carry on throughout their lives.

Lastly, we hope to be positive role models for all of our students, in particular those of color, representing that as women of color, it is possible to reach for and achieve one's dreams. This poster presentation will first analyze data about diversity within the teaching profession as well as diversity in children's books, which highlights the need for the inclusion of texts that represent all identities. Then, we will design a dream bookshelf for our future classrooms using modern,

inclusive texts.

Civic Education: The Impact Left on Student's Knowledge

Presenters: Erin Leary and Trinity Cheatom

Faculty Advisor: Dr. Elizabeth Finnegan, Professor of Education

Civic Education plays a crucial role in the development of education. Using resources we were able to find important aspects of civic education. The book, "Flunking Democracy" talks about elements that should be included in school in preparation for civic participation. It says students should have Civic Knowledge, Civic Skills, Civic Experiences, and Civic Values. These aspects have different importance that should be shown in the classroom. The second book we used was UNESCO. UNESCO's main purpose is to ensure that all individuals receive access to a quality education. The goal is to have a collaborative education for all children because that is what children deserve. School systems are essential and the role of schools is irreplaceable. The purpose of schools is to teach us how to be citizens and prepare us for life after school.

For this research, we conducted a survey. This survey consisted of 14 different questions, the majority of the questions were open-ended or provided multiple-choice answers. From our research and the survey we conducted, we were able to conclude that students did not feel prepared enough in civics after high school. Secondly, most of the classes that people mentioned benefitted them most did not have to do with civic education. Civic education was not seen as something that played much importance to students. Lastly, we concluded that participants' states did not impact the results. Civic education impacts individuals' learning experiences and helps them become effective citizens in life.

Serving Those Who Have Served Us: A Veteran Rehabilitation Program in Jefferson County NY

Presenter: Grady Brunelle

Faculty Advisor: Professor Ira Promisel, Instructor of Criminal Justice

This program is an option for resident veterans of Jefferson County NY, who have committed a non-violent crime to attend a combined 90-day inpatient and 90-day outpatient drug rehabilitation program as an alternative to incarceration and an opportunity to erase their charge. The patient would attend the pre-existing 90-day inpatient program at Credo Community Center in Watertown, NY under the frequent supervision of a case manager and a designated NYSP officer from the Watertown precinct.

Following graduation from the 90-day inpatient program they will immediately attend the existing 90-day outpatient program of Credo Community Center, and their case manager will monitor the treatment and check-in with both the patient and their providers to ensure that the patient is remaining compliant with all aspects of their treatment. The outpatient program's treatment will consist of daily attendance to the Credo Community Center, routine drug testing, and daily mental health therapy in both group and individual settings.

Upon graduation from the 180-day program, the patient's charge will be erased from their record. If the patient does not complete the program, they will face the entirety of their sentenced incarceration time.

The budget estimate of \$1,032,034 will be acquired through the New York State Substance Abuse and Mental Health Services Administration Grant, and the U.S. Bureau of Justice Assistance annual grant program.

This program offers several benefits, mainly prioritizing assistance over punishment in an attempt to break the recidivism cycle and improve individual health. This program aims to serve those who have served the nation by highlighting treatment over incarceration and offer a chance at health by treating a potentially fatal addiction.

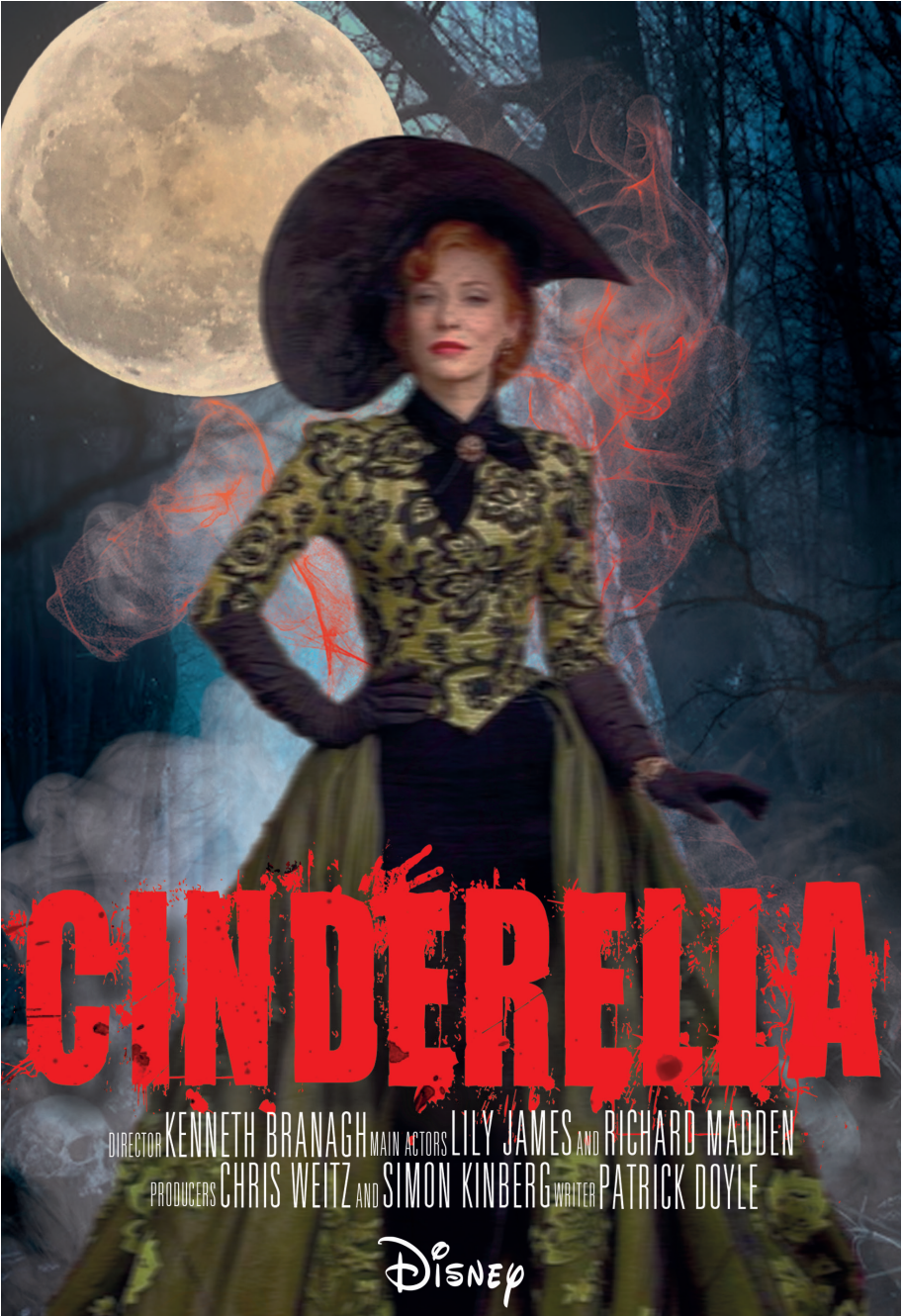
A Virtual Reality Simulation Training Program to Address Interagency Partnership Challenges in NYC Emergency Response

Presenters: Meghan Ruane

Faculty Advisor: Dr. Ellen Chayet, Professor of Criminal Justice

The emergency response (ER) field faces two interrelated issues. Police, fire, and emergency medical services (EMS) have differing responsibilities and training to perform their duties. Additionally, these organizations, particularly fire and police, have dissimilar organizational structures and communications protocol. This leads to challenges in interagency partnerships during ER. To resolve this issue, live drill multiagency physical simulation training is used to train first responders. However, live drills have drawbacks. They are costly, use resources inefficiently, and pose a safety risk to participants. Training attempting to solve one issue thus poses another.

Because of these challenges, a networked virtual reality simulation training (NVRST) program has been proposed. NVRST has been found to be cost effective, safe, and able to be repeatedly used. Additionally, virtual reality programs afford the ability to train for scenarios that may be unable to be



VISUAL COMMUNICATIONS IN GRAPHIC DESIGN

Sofia Corominas Cuen

replicated in real life.

Disseminated through New York City Emergency Management (NYCEM), the proposed NVRST program ensures participants of New York City (NYC) police, fire, and EMS agencies are able to virtually train together, even when in different physical locations. The program's pilot scenario will be relocating subway cars prior to subway station flooding. Participants will train in 6 sessions over 18 months, and will be assessed for their ability to follow NYCEM criteria for subway flooding collaboratively in a final NVRST assessment after the program. It is anticipated that 100% of subway cars in the assessment will be successfully moved by trained participants. Additionally, cost savings of supplementing live drills with VRST will be projected over three years to determine the savings NVRST offers NYC.

Unlocking Expression: Artistic Healing In Greene Correctional Facility

Presenters: Shane Cawley

Faculty Advisor: Dr. Neerja Chaturvedi Professor of History

Violence in the prison system is an ever-growing concern and is quickly becoming a massive health crisis for the United States. The New York State prison system is experiencing a rapid increase in violent prison incidents. Greene Correctional Facility, a medium-security prison in Greene County, New York, has had the highest amount of violent incidents and the highest rate of violent incidents per capita. Anger has been linked to high levels of aggression and violence in incarcerated men. Additionally, incarcerated men constitute one of the most difficult populations to provide therapeutic interventions, especially anger management. Unlocking Expression: Artistic Healing in Greene Correctional Facility is a proposed program that will be implemented in Greene Correctional Facility. It will target incarcerated men with elevated levels of anger or with a violent prison incident record and will work to decrease their trait state anger. The program will serve 30 incarcerated men over three months, with two hours of therapy per week, consisting of one solo and one group session. Unlocking Expression will deliver Cognitive Behavioral Therapy using Art Therapy to deliver the treatment. The goals of Unlocking Expression are to reduce incarcerated individuals' violence toward each other and on prison staff.

College Fed Challenge 2023

Presenters: Tricia Possell, Elionexis Lopez, Nicole Gysin, Kieran Keenan, Miles Fisher, Crystal Calle-Alvarez, and Joshua Heber

Faculty Advisors: Dr. Meghan Mihal, Professor of Economics; Dr. Rossen Trendafilov, Associate Professor of Finance

In September 2023, a team of eight students came together to participate in

the nationwide College Fed Challenge competition. Conducting our analysis, economic forecast, risks to our forecast, and creating our policy recommendation was a battle against time, which resulted in numerous late nights to get the best and most up to date information possible. In order to create a thorough economic analysis we covered numerous economic indicators such as GDP, inflation, financial markets, unemployment, labor and the housing markets. Once our analysis was completed we utilized Bloomberg for our economic forecast and evaluated potential upside and downside risks. The team decided to recommend holding interest rates, with the goals of not overheating the economy and to approach a soft landing, while recognizing that there is a lag with all economic policy. The team worked vigorously to get to the next round of the competition. We all became very well versed in the economic world and with the Bloomberg Terminals.

Meditation and Therapeutic Recreation Enhances 85 year old Woman diagnosed with moderate Alzheimer's disease in areas of Memory, Mood, and Social interactions

Presenters: Yandra (Yaya) Alberto

Faculty Advisor: Dr. Levine Madori

I am a student majoring in therapeutic recreation at St Thomas Aquinas College. I am doing an independent study in which I am working with the gerontology population, at the Promenade at Chestnut Ridge, New York, which is an independent living home. Statistics indicate that Alzheimer's disease is on the rise throughout the United States because of the baby boomer population hitting 70 years old. Seniors with dementia experience memory loss, trouble completing tasks, isolation from others and social activities.

My resident who is 85 years old who has been diagnosed with Moderate Alzheimer's disease. I worked with her for 8 weeks utilizing Therapeutic recreation under the supervision of Dr. Levine Madori.

During the 8 weeks, I conducted guided meditation first and then followed by an expressive arts activity. Pre/Post questions in regards to how they are feeling, their socialization and their stress was scaled from a 1-10.

After my 8 weeks of independently working with my resident at the Chestnut Ridge Promenade, I have collected data where I showcased on graphs below, showing an improvement in her 5 psychological domains; Socially, Memory, Emotionally, Relaxation, and Cognitive.

Case Study: Eco-Timber Implementation Program at Hilton Hotels

Presentes: Tricia Possell, Gino Gandzior, Julia Abreu, Natalie Oden, Andrew Alameda and Hanna Jung

Faculty Advisor: Christine Cahill, Professor of Business

According to the agreement made at the 2015 UN Climate Change Conference (COP21) in Paris, it is necessary to reduce carbon emissions by 43% by 2030 in order to keep the global temperature increase below 1.5 degrees Celsius. Recent UN reports show that the building and construction sector accounted for 37% of energy and process-related CO₂ emissions in 2021. While energy efficiency has improved greatly in recent years, running energy consumption like heating and cooling still contributes to 26% of global emissions. Even though the actual emissions from construction and materials at 11% are significantly lower, it is a driver of climate change that one should not neglect.

Hilton is a leader in the global hospitality industry; however, they have not recognized the problem of construction with energy intensive materials. In order to fulfill its goal of 75% carbon reduction by 2030, we advise the Board of Hilton to partner with Turner Construction to construct hotels with Cross Laminated Timber (CLT). CLT is proven to have a 40% lower carbon footprint than timber over its lifespan in addition to having enormous potential to reduce construction costs. The lightweight structure of CLT allows 30% shorter construction time compared to concrete and steel. CLT buildings have a construction pace per floor of 4-7 days, compared to the 21-30 days of conventional concrete. Turner has a standing working relationship with Hilton, as well as significant experience building with CLT. In conclusion, Hilton's collaboration with Turner Construction to adopt CLT presents numerous opportunities: significantly reducing carbon emissions while lowering construction costs and allowing Hilton to reach its ESG goals.

82 year old women with Mild Dementia benefiting from Therapeutic Recreation activities

Presenter: Samantha Larkin

Faculty Advisor: Dr. Linda Levine Madori, Professor of Therapeutic Recreation

The Promenade at Blue Hill located in Pearl River, NY, is a memory care and assisted living facility. As a Therapeutic Recreation major, in the 4th year research class, I got the opportunity to work one on one with an 82 year old woman diagnosed with Mild Alzheimer's Disease (AD). AD is a brain condition characterized by progressive or persistent loss of intellectual functioning with impairment of memory and abstract thinking. I experienced first hand how it is to work with a senior with AD and provide Therapeutic Recreational activities

with outstanding results.

The TR407 research class utilized the TTAP Method[®], which is known as Therapeutic Thematic Arts Programming. This method is designed to enhance the five psychological domains, which include; Social, Emotional, Cognitive, Physical, and Spiritual. With this method my research will show enhancement of socialization, increase time spent in programming, decrease isolation, while increasing mood and relaxation.

All residents had written prior photo consent and participated in the provided activities by the students once a week across a 8 week period. I was able to develop a deep connection with the resident I worked with during the time spent together. My research resulted in tremendous outcomes demonstrated in the pre and post data collection. The most significant data outcome was in memory, because individuals diagnosed with AD commonly lose memory. My research supports Creative Therapeutic Arts activities slow the decline of the brain.

Variables that Affect the Number Traffic Citations in NYC

Presenters: Dahiana Garcia Atuesta and Chanelle Russell

Faculty Advisor: Dr. Andrew Lee, Assistant Professor of Mathematics

This project delves into the multifaceted dynamics influencing the issuance of traffic tickets in Manhattan, focusing on income levels and English proficiency as primary variables. This is done with the use of data from NYC open data and US Census data and manipulated with the RStudio platform. The investigation examines whether higher income correlates with increased citations due to greater financial capacity for payment, or conversely, if lower-income areas witness higher citation rates. Additionally, it explores whether individuals with lower English proficiency face higher citation rates, potentially stemming from difficulties in interpreting signage or communicating with law enforcement. Visual representations include an analysis of ticket distribution overlaid with shades indicating concentrations of public assistance recipients. The study raises critical questions regarding the underlying purposes of traffic tickets, positing punitive measures, traffic management, and revenue generation as primary motives. Through this research, we aim to elucidate the intricate interplay between socioeconomic factors, language proficiency, and law enforcement practices in shaping traffic citation trends in Manhattan.

New York Food Data

Presenter: Holger Sanchez

Faculty Advisor: Dr. Andrew Lee, Assistant Professor of Mathematics

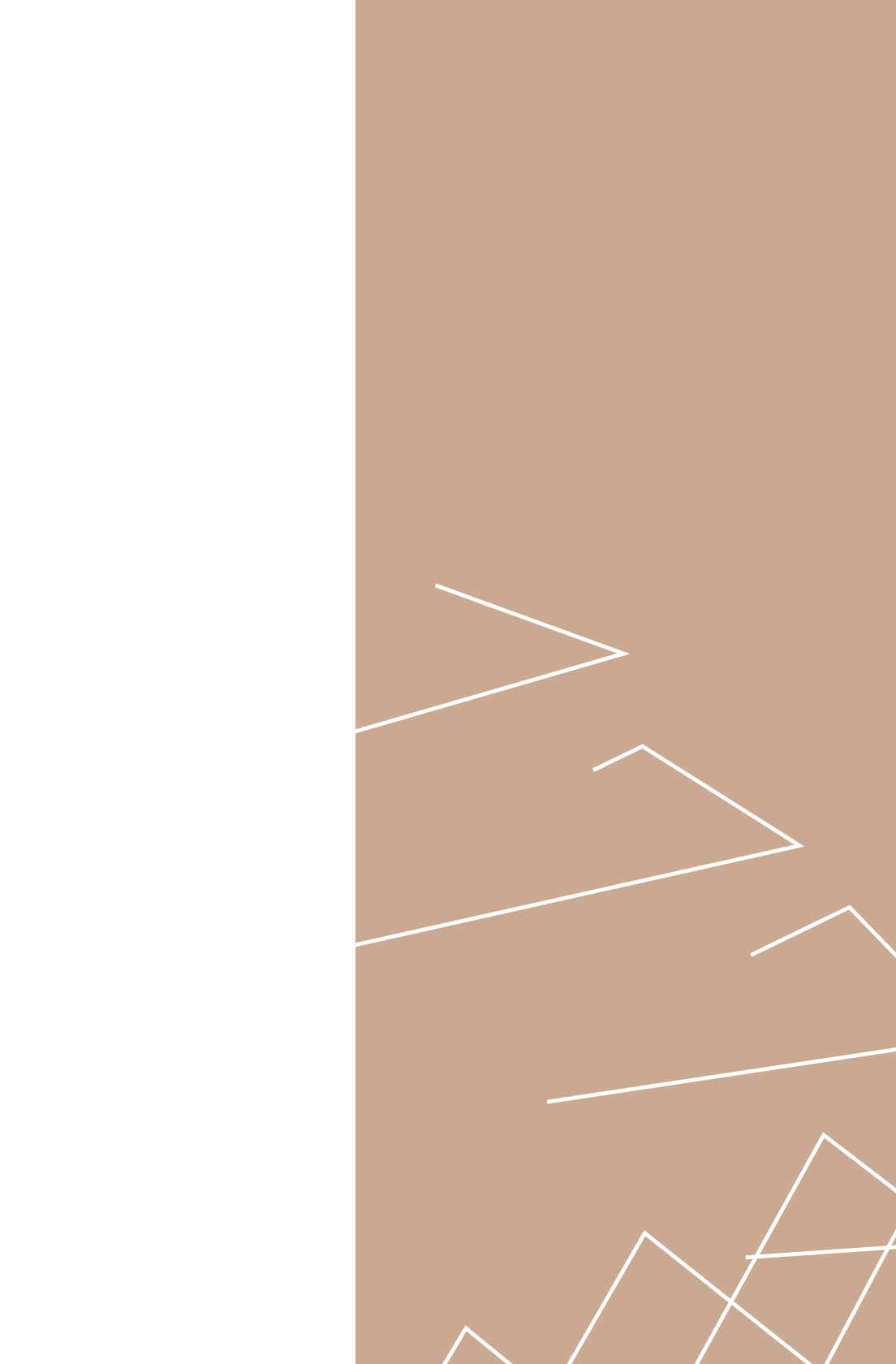
We are observing the low food access in New York state. This means that we see how far you have to be to have a local grocery store depending on the location you're in. With this we are analyzing what the data means. We are also collecting news articles for a reason why certain data could be. We are also investigating the population's circumstances like income, poverty rate, and snap benefits. With all this data we will analyze each map and explain possible factors that come in play why this could be to have a better understanding of the county.

Congressional District Standouts: Polsby Popper

Presenters: Joshua Ashie and Ricardo Gonzalez

Faculty Advisor: Dr. Andrew Lee, Assistant Professor of Mathematics

In the realm of election redistricting, there is a frequent challenge when deciding the impartiality of congressional map redistricting. By analyzing the Polsby Popper scores of the states in the US, and inspecting the political science behind them, we can determine the effects it has on voting, polls and how it affects the Democratic and Republican parties. Polsby Popper score is a measurement calculated by taking the ratio of the area of a district to a circle whose circumference matches the district's perimeter. Investigating these findings allows us to analyze the districts' geographical characteristics and the impartiality of redistricting in the United States of America.



AZARIAN MCCULLOUGH ART GALLERY

St. Thomas Aquinas College
Costello Hall Room 110
125 Route 340
Sparkill, NY 10976

stac.edu/amag | amag@stac.edu



AZARIAN MCCULLOUGH
ART GALLERY

 ST. THOMAS AQUINAS COLLEGE