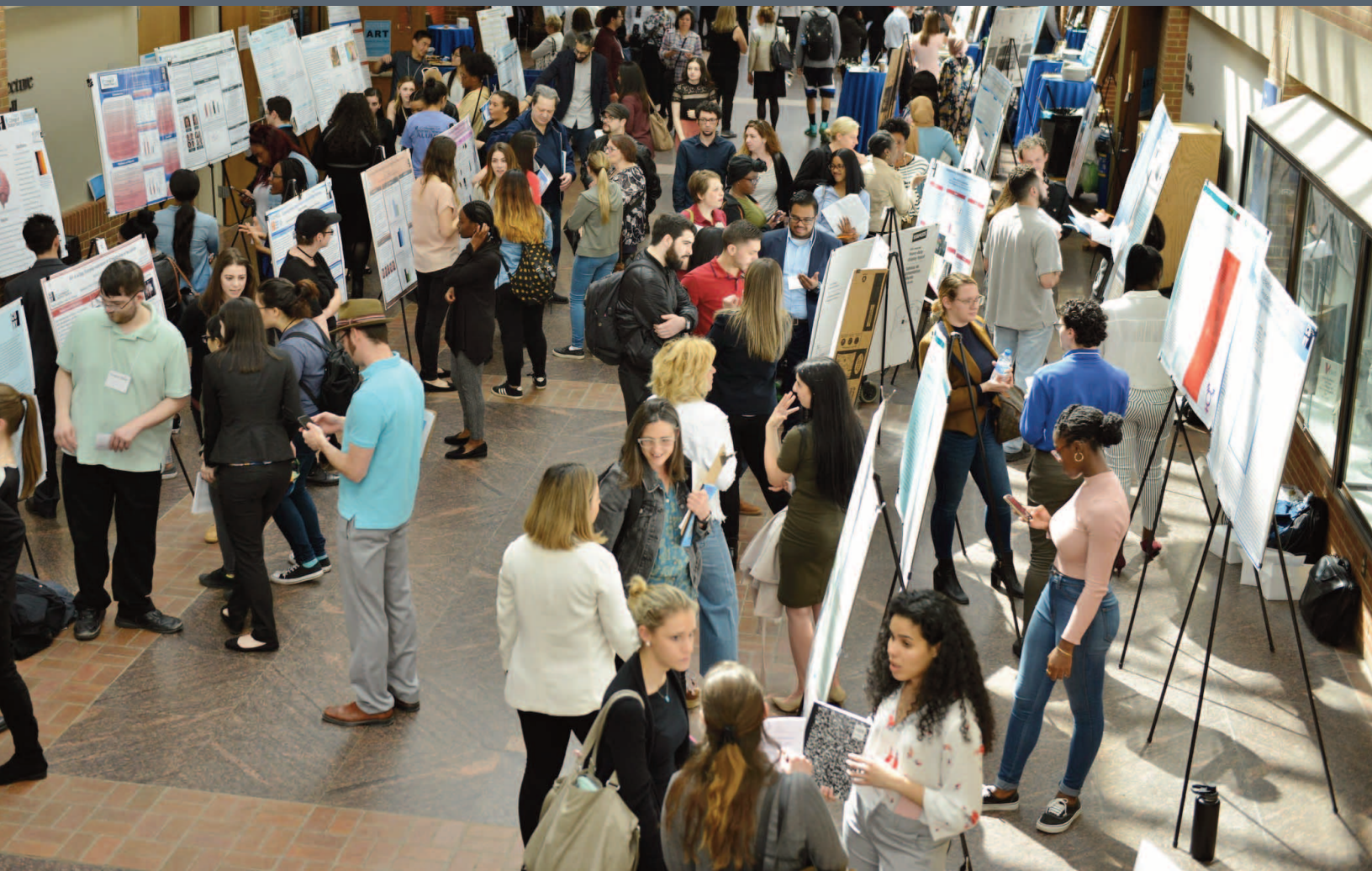


CSI UNDERGRADUATE CONFERENCE

RESEARCH, SCHOLARSHIP, AND THE ARTS

Thursday, April 27, 2023



www.csi.cuny.edu/ugconference



College of Staten Island
The City University of New York



CSI UNDERGRADUATE CONFERENCE

RESEARCH, SCHOLARSHIP, AND THE ARTS

Thursday, April 27, 2023



Sponsored by the Division of Academic Affairs with special thanks to all of our community and campus partners who supported this conference: Con Edison, Northfield Bank, Northfield Bank Foundation, CSI Student Government, and the CSI Alumni Association.





CSI Undergraduate Conference

Message from the President

Undergraduate research is one of the hallmarks of a top-tier institution, and the College of Staten Island can truly claim a legacy of this activity. Our faculty work with and involve students in an impressive array of high-impact practices, providing meaningful exposure to research in the sciences, humanities, business, education, and performing and creative arts, as well as the social and health sciences. What you see before you is the culmination of hundreds of hours of activity in laboratories, archives, and elsewhere. The dedication of our faculty in supporting these efforts is matched only by the enthusiasm and talented contributions of their student counterparts.

The activities you see on display at this event are proof that hands-on, experiential learning is key to a college curriculum. Through undergraduate research, our students are able to apply the theories, concepts, and constructs they learned about in lecture to the real world. The linkage of theoretical and applied knowledge is a crucial component of undergraduate education, and represents the very best of both teaching and learning.

The annual Undergraduate Research Conference is, along with Commencement, one of the proudest days for the College of Staten Island. It allows us to celebrate the accomplishments of so many students in so many disparate areas; I am pleased to share with you all the hard work of our students and their faculty mentors. Enjoy the event!

Sincerely,

A handwritten signature in black ink that reads "Timothy G. Lynch". The signature is written in a cursive, flowing style.

Timothy G. Lynch, Ph.D. (he/him/his)
Interim President

**CSI Undergraduate Conference on Research, Scholarship, and the Arts
Conference Schedule - Thursday, April 27, 2023**

Noon-4:00pm	<p>The Art Gallery of the College of Staten Island 1P-112 Support Systems A group exhibition featuring artists on the faculty of the Performing and Creative Arts Department. The exhibition highlights the diverse media that our adjunct faculty use within their practices (curated by Prof. Miguel Aragon).</p>
Noon-1:00pm	<p>Lunch available to participating students and mentors 1P-2nd Floor – West Lounge</p>
12:30pm-4:00pm	<p>Media Culture Lab Theatre, 1P-110B Films, videos, and design and digital media by students from the Department of Media Culture. Works will be running in a continual loop for viewers to drop in at any time throughout the event. Faculty advisors: Prof. Tara Mateik, Prof. Michael Mandiberg, and Prof. Jason Simon.</p>
1:00pm-2:00pm	<p>Plenary Session - Williamson Theatre, 1P-111</p> <ul style="list-style-type: none"> • Musical Introduction: Angel Muñoz-Avila (Class of '25) Harpist • Opening remarks: Dr. Michael E. Steiper - Interim Provost/Senior Vice President for Academic Affairs • Keynote Address: Prof. Ellen-ge Denton - Associate Professor of Psychology "Unfolding Gives Understanding" • Closing vocal performance: Diana Claps (Class of '24) Soprano, with Prof. Bill Bauer on piano
2:00pm-4:00pm	<p>Poster Presentations 1P Atrium</p>
2:30pm-3:30pm	<p>Music Hour Williamson Theatre, 1P-111 Musical performances featuring Composition students, Senior Recital Performers, and Ensembles from the Performing and Creative Art Department's Music Program. Featuring private students of Prof. Ed Brown, Prof. Elena Heimur, Prof. Michael Morreale, and Prof. Jane Saunders, as well as Ensembles directed by Prof. Vincent Guarna, Prof. Chelsea Lane, and Prof. Michael Morreale.</p>
2:30pm-4:30pm	<p>The Student Art Gallery 1P-118B A Juried Group Exhibition of Student Art curated by PCA student curators Venessa Robinson, Ashanti Alston, Vic Kleinau (faculty adviser: Prof. Beth Livensperger)</p>
2:30pm-4:30pm	<p>CSI Sculpture Exhibition CFA Atrium - The Glass Case A display of small sculptural works by Studio Art students in the Performing and Creative Arts Department (curator: Prof. Marianne Weil)</p>
3:30pm-4:00pm	<p>A Scene from the Play <i>A Doll's House</i> Williamson Theatre, 1P-111 The Drama Program of the Performing and Creative Arts Department presents a scene from Henrik Ibsen's <i>A Doll's House</i>, performed by students; adapted and directed by Prof. Lee Papa (English Department).</p>

THE DEPARTMENT OF
PERFORMING AND CREATIVE ARTS
AND THE DEPARTMENT OF MEDIA CULTURE

PRESENT

AN ART AND MUSIC EXPOSITION

**at the
22nd Annual
CSI Undergraduate Conference
on Research, Scholarship,
and the Arts**

MUSIC HOUR: COMPOSITION STUDENTS, SENIOR RECITAL PERFORMERS, AND ENSEMBLES FROM THE PERFORMING AND CREATIVE ART DEPARTMENT'S MUSIC PROGRAM

Williamson Theatre, 1P-111

2:30pm-3:30pm

The Music Program presents a program of performances by Music majors and other CSI students featuring works in a variety of genres. Students practice and rehearse these works all semester under the guidance of faculty mentors. They tackle the technical and artistic challenges of public performance, learning works in a wide range of styles written by composers from many cultures. This intensive preparation results in high-quality performances that are offered to the student body and the general public.

Featuring private students of Ed Brown, Elena Heimur, Michael Morreale, and Jane Saunders, as well as ensembles directed by Vincent Guarna, Chelsea Lane, and Michael Morreale.

Program performers include:

CSI Chamber Ensemble: Jerrol Bowman (Class of '24) - violin, Madisen Cutler (Class of '24) - flute, Angel Munoz-Avila (Class of '25) - harp, directed by Chelsea Lane.

Victoria Amodeo (Class of '23) - soprano, with Prof. Bill Bauer on piano

Anthony Delcore (Class of '24) - guitar

Mano Merca (Class of '24) - guitar

Sean LaMantia (Class of '23) - piano

Adam Alvarez (Class of '23), composer: compositions and arrangements featuring students of CSI Jazz Ensemble and Jazz Rep Combo

A SCENE FROM THE PLAY A DOLL'S HOUSE

Williamson Theatre, 1P-111

3:30pm-4:00pm

The Drama Program of the Performing and Creative Arts Department presents a scene from Henrik Ibsen's *A Doll's House*, performed by students; adapted and directed by Professor Lee Papa (English department).

Student performers: Huma Ahmad, Regan Sou, and Christian Martinez.

STUDENT ART EXHIBITION

Student Gallery in 1P-118B

2:30pm-4:30pm

A range of works produced by CSI students taking classes in painting, drawing, sculpture, and photography selected and curated by students in the Art major.

Student curators: Venessa Robinson, Ashanti Alston, Vic Kleinau

Faculty adviser: Beth Livensperger

Participating artists:

Janan Babayev	Brianna Flores	Grace Miranda-Villalobos
Stephanie Caputo	Irina Fredriksson	Dustin Oriente
Gabriello Cerroni	Daniela Guadarrama	Cassandra Perrera
Crisogono Chavez-Montano	Vic Kleinau	Gabriel Pujol
Ever Chen	Shane Lepore	Elizabeth Reyfman
Victoria DeSantis	Darlene Livingston	Daryn Santamaria
Machami Diomande	Madison Malerba	Rachel Taber
Vanessa Farfan	Allison Mackey	

CSI SCULPTURE EXHIBITION

1P Atrium – The Glass Case

2:30pm-4:30pm

A display of small sculptural works by Studio Art students in the Performing and Creative Arts Department

Faculty Adviser: Marianne Weil

Artists: Ife Anosike, Uriel Cruz, Victoria Desantis, Nathaniel Doerbecker, Brianna Flores, Jamie Garcia Yescas, Madison Malerba, Gabriel Pujol, Samantha Wilkinson, Riyah Babayev, Marianne Carlina

SUPPORT SYSTEMS

The Art Gallery of the College of Staten Island, 1P-112

Noon–4:00pm

A group exhibition featuring artists on the faculty of the Performing and Creative Arts Department. The exhibition highlights the diverse media that our adjunct faculty use within their practices (curated by Prof. Miguel Aragon).

CREATIVE WORKS BY STUDENTS FROM THE DEPARTMENT OF MEDIA CULTURE

12:30pm-4:00pm

Center for the Arts

Lab Theatre, 1P-110

The Department of Media Culture proudly presents creative works by students graduating in the Bachelor of Arts degree in Cinema Studies, the Bachelor of Science degree in Communications: Media Studies, and the Bachelor of Science degree in Communications: Design and Digital Media.

Design and Digital Media

Two-dimensional and moving-image work by students developing logos, animations, digital images, graphic novels, and other digital media using Adobe and other creative software tools in the Department of Media Culture's Design and Digital Media Lab.

Jehona Ame

Omar Enriquez

Shawn Haniff

Vincent Lin

Sebastian Llivichuzhca

John Marotta

Jamal Oriol

Liza Peters

Kevin Ulloa

Special thanks to Professor Michael Mandiberg, who taught the capstone course COM 451 Advanced Design and Digital Media Workshop in which students developed these works.

Films and Videos

Louis Adorno, *Erosion* (2022, 4 min 48 sec)

Paying respects to a fallen love, a cowboy discovers the world he once knew may have vanished with her. Shot on 16mm black and white reversal film.

Franky Duran

Out of Sight Out of Mind (work-in-progress, excerpt)

Sam, a college student, begins to question his reality. As unexplained phenomena begin to seep into his life, he struggles to find the origins of these experiences.

Kyle Quesada, *The One* (work-in-progress, excerpt)

Long after a break-up, Cameron remains heartbroken. He perseveres to rebuild his confidence and build new relationships.

Jaylin Shackelford, *Oneiric* (work-in-progress, excerpt)

A young man becomes overwhelmed with adult life. Reconnecting with college buddies triggers his memory and leads him to a dream world about his past.

Louis Adorno

2020: Life, Injustice, and Tragedy as (Social) Mediated Spectacle

8 min, 47 sec (excerpt)

A video essay chronicling the epidemic of racism amid the revolutionary social condition of the Coronavirus pandemic, and the role of mainstream and social media in mobilizing media consumers.

Special thanks to the faculty of the Department of Media Culture working with these students: Professor Tara Mateik, Professor Edward Miller, and Professor Jason Simon.

POSTER PRESENTATIONS

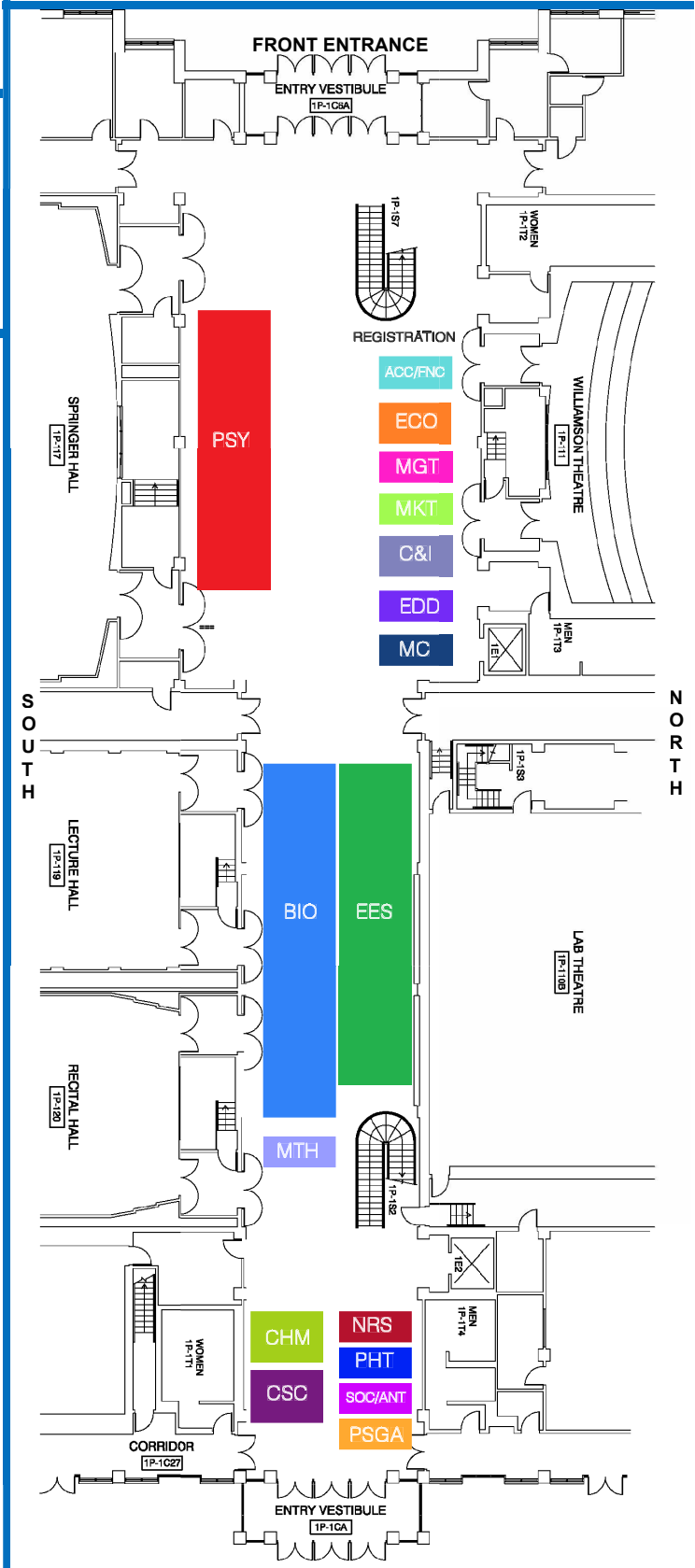
CSI UNDERGRADUATE CONFERENCE
RESEARCH, SCHOLARSHIP, AND THE ARTS

Thursday, April 27, 2023 | 11:30am - 4:30pm
CENTER FOR THE ARTS 1P - ATRIUM

POSTER LOCATION BY DEPARTMENT

- ACCOUNTING AND FINANCE (ACC/FNC)**
Front Entrance-North Wall (*Williamson Theatre*)
- BIOLOGY (BIO)**
Center-South Wall (*Lecture/Recital Halls*)
- CHEMISTRY (CHM)**
Back Entrance-South Wall
- COMPUTER SCIENCE (CSC)**
Back Entrance-South Wall
- CURRICULUM AND INSTRUCTION (C&I)**
Front Entrance-North Wall (*Williamson Theatre*)
- ECONOMICS (ECO)**
Front Entrance-North Wall (*Williamson Theatre*)
- EDUCATIONAL STUDIES (EDD)**
Front Entrance-North Wall (*Williamson Theatre*)
- ENGINEERING and ENVIRONMENTAL SCIENCE (EES)**
Center-North Wall (*Lab Theatre*)
- MANAGEMENT (MGT)**
Front Entrance-North Wall (*Williamson Theatre*)
- MARKETING (MKT)**
Front Entrance-North Wall (*Williamson Theatre*)
- MATHEMATICS (MTH)**
Center-South Wall (*Lecture/Recital Halls*)
- MEDIA CULTURE (MC)**
Front Entrance-North Wall (*Williamson Theatre*)
- NURSING (NRS)**
Back Entrance-North Wall
- PHYSICAL THERAPY (PHT)**
Back Entrance-North Wall
- POLITICAL SCIENCE and GLOBAL AFFAIRS (PSGA)**
Back Entrance-North Wall
- PSYCHOLOGY (PSY)**
Front Entrance-South Wall (*Springer Concert Hall*)
- SOCIOLOGY and ANTHROPOLOGY (SOC/ANT)**
Back Entrance-North Wall

1P - ATRIUM | 1ST FLOOR



ACCOUNTING AND FINANCE

POSTER: ACC/FNC-01

Inflation: It's Causes and Effects

Annie Liu

Faculty Mentor: Professor Andrew Colbeck
Department of Accounting and Finance

Inflation, the increase in the cost of living, is a phenomenon currently affecting the U.S. and global economies. It is a national phenomenon that many may not appreciate. Even though many hope to avoid rapidly increasing inflation, there are benefits we can reap from it. As our country takes action against inflation we, as individuals, can protect ourselves and take advantage of increased rates on bonds and reduced prices on specific securities. We have experienced inflation in the past. Most recently, the Great Inflation which occurred between the mid 1960s and early 1980s. At the time, the government was slow to react resulting in the recession experienced in the 1980s. Currently, our economy is experiencing inflation as seen by comparing the CPI level pre and post pandemic. The Federal Reserve Bank has taken action to combat this rise in inflation by increasing interest rates, a technique that has been used in the past. By increasing rates, the government hopes to reduce the amount of money in the financial system and the economy by increasing the cost of borrowing money. Although some groups may benefit from inflation, most suffer, especially lower-income families. As it can be considered a flat tax, an added expense to those who are already frugal with their spending. This topic has been studied by many, including Nobel Laureate Milton Friedman. Inflation affects individuals, families, businesses, and corporations potentially leading to a "domino effect" on the entire economy.

POSTER: ACC/FNC-02

How to Value Securities and Mitigating Risks

Meiyuan Lin

Faculty Mentor: Professor Paul E Orzechowski
Department of Accounting and Finance

Securities markets exist in most major economies throughout the world. Prices are determined by the interaction between buyers and sellers; decisions depend on the perceptive return and the risk of bearing. This paper focuses on strategies of security valuation and risk mitigation based on the three pillars: economics, accounting, and financial management. Through past study and research, we find security valuation and risk could be interpreted from business operating conditions, alignment fundamental analysis, and psychological effects. Also, we will discuss psychological bias effects relative to systematic risk and market sentiments as well as the effects on security value. Security value and the level of risk are affected by external and internal factors in the pillars. External aspects relate to macroeconomic conditions including a period of inflation, policies orientation impact on certain industries, and economic conditions such as depression or expansion, etc. Internal components influence business profitability relative to managerial behaviors and competitive circumstances. A business's operating situation, the trends of earnings, dividend policy, investment orientation, and so forth, affect its profitability, and that influences its security price. Also, unpredictable economic environments affect business operations and cash flows; the bad economic environment may cause businesses to suffer bankruptcy. So, selecting a high-quality business to invest in, determining a reliable source of return, is crucial to risk mitigation; digging a low-valuation stock relies on profitability, accounting quality, and investment, is the tactic for a potential spectacular return.

BIOLOGY

POSTER: BIO-01

The Effect of Tau on Cervical Cancer Cells

Sandi Kelada

Faculty Mentor: Professor Alejandra Alonso

Department of Biology

Tau is a microtubule-associated protein that plays a major role in Alzheimer's disease. In new literature, tau was discovered to play a role in the cell cycle of cancer cells, where it's involved in the separation of sister chromatids in anaphase and in maintaining the integrity of the DNA during cell division. Specifically, the tau protein, expressed in the nucleolus of mitotic HeLa cells, is involved in the nucleolar organization. Excess of tau has also been shown to induce mitotic arrest and defects in mitosis lead to aneuploidy and cell death. Certain literature shows that the accumulation of tau can make prostate cancer cells more responsive to chemotherapy due to the increase in cytotoxicity. My project first explored how human pathological tau affects cervical cancer cells that have undergone a stable transfection. These cells were unable to express the gene for the pathological tau and died as a result due to the excessive toxicity of the tau. However, when the cells were transfected with the pathological form of tau that has the nuclear localization signal they were able to express the tau as a result of reduced toxicity as well as the normal kind of tau. To monitor the change in growth, growth curves were constructed over a period of time. From these growth curves, it has been observed that among the HeLa cells transfected with the pathological tau that has the nuclear localization signal, the growth rate was reduced compared to the control group and among the HeLa cells transfected with normal tau, the growth rate was greater compared to the control group. Once these results were established, it was now time to explore the mechanism behind these changes in growth. To further examine this, staining using Caspase 3, Phospho Histone Kinase III and DAPI were performed and images were taken. Preliminary analysis from these images conveys that the pathological tau with the nuclear localization signal has greater expression of these markers compared to normal tau transfected HeLa cells and the control group consistent with cell cycle arrest and apoptosis that could be occurring in these cells. Ultimately, additional staining will still take place to confirm these results and western blotting will also be done to confirm these results biochemically.

POSTER: BIO-02

In Vitro Analysis of 2N3R, Thr 212, Ser 262 Pseudo-Phosphorylated Tau Isoform on HEK Cells

John Doyle

Faculty Mentor: Professor Alejandra Alonso

Department of Biology

The 2N3R Control unphosphorylated Tau isoform, 2N3R Pseudo-phosphorylated Tau isoform at sites Thr 212 and Ser 262, and the 2N4R longest Tau isoform samples were utilized for in vitro analysis to explore the possible implications of the pseudo-phosphorylated 2N3R isoform on patients with Alzheimer's Disease. Tau plasmid purification was performed and analyzed through Nanodrop Spectrophotometer. Furthermore, SDS-PAGE Gel Electrophoresis and Western Blotting techniques were used to determine the true identity and purity of our protein sample. Transient transfection of these Tau plasmids was performed on Human Embryonic Kidney cells (HEK cells), and were coated with an Endolectamine reagent and opti-MEM medium complex, before being examined through Confocal Microscopy. Another transfection was performed, with added purified Tau protein and immunostaining involving Anti-Tau rabbit and Anti-Tubulin mouse labeled polyclonal secondary antibodies before being evaluated under Fluorescent Microscopy. Images that were collected from both transfections through Confocal and Fluorescent microscopy demonstrated that the 2N3R 212, 262 pseudo-phosphorylated Tau isoform can break down microtubules, translocate into nucleus of HEK cells, form aggregates both in cytoplasm and in nucleus of HEK cells, and has potential to be toxic to HEK cells.

POSTER: BIO-03**The Fate of the PH-TAU, Exocytosis or Degradation?****Momtahina Akter**

Faculty Mentor: Professor Alejandra Alonso

Department of Biology

Tau is a microtubule-associated protein (MAP). Tau is essential because it aids in the maintenance of microtubules in the central nervous system's (CNS's) neuronal axons. Tau is a phosphoprotein, and its level of phosphorylation is critical for its proper functioning. Normally, each mole of tau contains three moles of phosphate. However, tau protein becomes hyperphosphorylated in Alzheimer's disease patients, resulting in 7-10 moles of phosphate per mole of protein. When Tau gets hyperphosphorylated it can't bind to tubulin and stabilize microtubules.

Additionally, aberrant and hyperphosphorylated tau attaches to normal tau, separating it from the microtubules. As a result, the microtubules are disrupted, and the neuron dies.

When pathogenic TAU (PH-TAU) is taken up by cells, a portion of the protein is transferred by the endo-lysosomal route to lysosomes for degradation or can be excreted in the form of exosomes, resulting in the disease spreading further. The purpose of this research is to figure out what happens to PH-TAU after it has been taken up by cells. To do so, we looked for tau protein colocalization with RAB5 (early endosome marker), RAB7 (late endosome marker), and RAB11 (endo-lysosomal marker). Moreover, the Direct Current (DC) stimulation is the technique that was shown to promote the upregulation of heat shock proteins, which are responsible for the identification and degradation of misfolded proteins. In this project, we also want to see if DC stimulation will lead to increased PH-Tau degradation (colocalization with Rab11) compared to unstimulated cultures.

POSTER: BIO-04**Developing a Methotrexate-Resistant GL261 Cell Line****Lawrence Gleyzer**

Faculty Mentor: Professor Probal Banerjee

Department of Biology

Cancer cells develop chemoresistance via treatment with chemotherapeutic agents (CAs). When higher doses of CA are used, immunosuppression often occurs through elimination of fast-dividing immune cells. Curcumin (CC) is known to cause inhibition of chemoresistance. Our cell culture experiments have used GL261, a mouse Glioblastoma (GBM) cell line, and demonstrated that IC₅₀ for Methotrexate (MTX), a CA, alone is about 26 nM, but, as mentioned earlier, it is known that cancer cells can develop resistance to MTX.

In this study, our objective was to generate a MTX-resistant line from 2019 GL261 with Roswell Park Memorial Institute (RPMI) Medium 1640, with increasing sublethal concentrations of Methotrexate (MTX). We hypothesized that as the MTX concentration increased, the number of discrete GL261 colonies would decrease. Initially, we thawed and plated GL261 cells in 6-well plates and prepared 700 μ M, 1.05 μ M, 1.4 μ M, 2.8 μ M, 3.5 μ M and 5.6 μ M [MTX] via serial dilutions. After 2 months of treating GL261 cells twice a week with these MTX concentrations, MTX-resistant colonies began developing in many of these culture plates. In a repeat experiment, GL261 cells were treated with 1 μ M, 10 μ M, 20 μ M and 50 μ M of MTX for 4 months. Again, GL261 cells also developed colonies at these MTX concentrations, demonstrating that GBM cells can develop MTX resistance at MTX concentrations significantly higher than the IC₅₀ of MTX for parent GL261 cells. Next, we conducted dose-response analysis of MTX, CC, and 1:1 MTX-CC to determine their respective IC₅₀ values for the parent and the corresponding MTX-resistant lines. We analyzed their effectiveness of inhibiting chemoresistance-causing proteins to test our hypothesis that CC would effectively eliminate the resistance. Our results from this study have demonstrated that the GL261 cells have developed sufficient MTX-resistance, but CC was not able to eliminate MTX-resistance, indicating that the MTX-resistance-causing proteins are not those that are inhibited by CC. This project opens avenues for future studies to determine the identity of the MTX-resistance-causing proteins.

POSTER: BIO-05

The Mechanism & Stigma Behind Autism Spectrum Disorder

Kayla A Le

Faculty Mentor: Professor Michelle Esposito
Department of Biology

The reasoning behind various behavioral cues in people with autism spectrum disorder (ASD) is not well-known. Many individuals disregard the lack of cognitive control correlating to behavioral rigidity when encountering someone on the spectrum. This idea leads to many believing that ASD originated from the administration of vaccinations since a reliable diagnosis would be given at young children turning two-years-old. However, researchers are debunking the different theories and presenting evidence stating that neurocognitive processes and genetics contribute to the explanation behind why people with ASD exhibit different reactions to triggers and stimuli as opposed to those without the disorder. Despite the many articles and literature reviews that were published supporting this idea, the stigma connecting vaccinations and autism continues to grow.

POSTER: BIO-06

The Use of Natural Methods to Control Foodborne Biofilms

Sara Turku

Faculty Mentor: Professor Michelle Esposito
Department of Biology

Biofilms are large aggregates of various species of bacteria or other microorganisms tightly attached to surfaces through an intricate extracellular matrix. These complex microbial communities present quite the challenge in the food processing industry, as conditions such as raw meats and diverse food product content in contact with workers, drains, machinery, and ventilation systems, make for prime circumstances for contamination. Adding to the challenge is the highly resistant nature of these biofilm growths and the need to keep in mind that any antimicrobials utilized in these situations risk health implications with human consumption of the products that are being processed in these locations. For that reason, the ideal means of sanitizing areas of foodborne biofilms would be natural means. Herein, we review a series of innovative natural methods of targeting foodborne biofilms, including bacteriocins, bacteriophages, fungi, phytochemicals, plant extracts, essential oils, gaseous and aqueous control, photocatalysis, enzymatic treatments, and ultrasound mechanisms.

POSTER: BIO-07

Oysters: How Nature-Based Infrastructure May Be the Answer to Staten Island's Eroding Coastline

Nancy McKeown

Faculty Mentor: Professor Michelle Esposito
Department of Biology

For decades, Staten Island has seen the effects of climate change through an eroding coastline thus affecting the overall urban livability of the Staten Island community. Over the last decade, since Superstorm Sandy, the Billion Oyster Project has taken steps to strategically combat coastline erosion while also revitalizing the oyster population and improving the aqueous environment. Historically, oysters have shown their community benefits to Staten Island dating back to the 19th century to current-day possibilities of green job creation, recreation space creation, and numerous health benefits. This research project will aim to showcase how nature-based infrastructure offers not only ecological solutions and social resilience but also benefits to the Staten Island community in regard to health, socioeconomic factors, and quality of life. Additionally, it will establish a link with the New York State Living Environment Core Curriculum, the Next Generation Science Standards (NGSS), as well as the importance of student involvement in problem-solving ecological issues within their community inside and outside the classroom.

POSTER: BIO-08**Neuro-2a Model for Self-Avoidance****Lily K Samborska**Faculty Mentor: Professor Nicole LaMassa
Department of Biology

Cadherins are a type of cell-adhesion molecule most commonly found in the nervous system. Protocadherins (pcdhs) are the largest subgroup of cadherins, and their role in intercellular interaction is unclear. In some cases, pcdhs have been linked to membrane association, while in other cases they appear to cause cell avoidance. Dendrites from the same neuron express identical pcdhs, and contact between them initiates a process termed “self-avoidance” where the dendrites from the same neuron avoid each other. Immunostaining in cultured neurons has shown that pcdhs are reliable for contacts between same-cell dendrites that we have termed “dendritic bridges”. It is believed that the dendritic bridges represent the cellular structures that mediate self-avoidance in neuronal dendrites during development.

Because it is labor intensive to prepare cultured neurons, the neuro-2a cell line was used in place of neurons. It is a mouse neuroblastoma cell line that extends protrusions resembling dendrites. Preliminary studies show that transfected pcdhs can accumulate at sites of same cell contact between these protrusions.

The goal of the project is to determine if neuro-2a cells can be used as a model for dendritic self-avoidance and to probe the role of pcdhs in this process. Neuro-2a cells were plated to determine the optimal conditions in which the cells extend dendrites, including retinoic acid and pure ethanol treatment. Dendrite extension and dendritic bridge formation were quantified by staining the dendrites with bromophenol blue and quantitative confocal microscopy. Once the optimal conditions for dendritic bridge formation were identified, cells were transfected with pcdh-GFP (green fluorescent protein) fusions and the targeting of the proteins to dendritic bridges was evaluated by confocal microscopy. We predict that the increased adhesion of the pcdh trafficking mutants will cause an abnormal clumping of the dendrites when introduced into neuro-2a cells.

Studying neuronal differentiation is of interest as research findings can be drawn to neurodegenerative diseases such as Parkinson's and Alzheimer's. Identifying the specific causes for n2a differentiation provides us with the knowledge of how to better prevent neurodegenerative disease in humans.

POSTER: BIO-09**Expression Patterns of Cytokines and Human Leukocyte Antigens (HLAs) in Glioblastoma Multiforme (GBM): A Developing Story****Lara A Colombo**Faculty Mentor: Professor Nancy Liu-Sullivan
Department of Biology

Despite all the progress made, cancer remains a challenging disease. Glioblastoma multiforme (GBM) is widely known as the most aggressive form of brain cancer and has a substantially low overall survival rate. Glioblastoma multiforme continues to pose a challenge to treatment efficacy and overall patient survival. Since the immune system plays a crucial role in cancer development, interleukin-6 (IL-6) is an essential molecule that controls multiple aspects of human immunity in the immune system. IL-6 molecule is a key pro-inflammatory (which promotes inflammation causing the disease to become more severe) cytokine. Cytokines, signaling molecules with immune responses, are growing in interest in how they shape cancer cell growth and spread of cancer from one part of the body to another, also referred to as metastasis. Human leukocyte antigens (HLAs) are also vital for the immune system to thrive due to the ability to regulate immune responses as well as detect foreign cells or agents that are then transferred to T-cell receptors. Understanding the role of HLAs helps better characterize and understand how glioblastoma multiforme evades immune defense. This information is also beneficial in providing potential candidates for therapeutic targets in glioblastoma multiforme. Using the Oncomine and Kaplan-Meier Plotter databases, numerous studies were analyzed for the following genes, IL-6, IL-6R, HLA-A, HLA-B, and HLA-C. Since glioblastoma multiforme is a very aggressive grade four glioma and is a form of astrocytoma, patient age is imperative to consider and investigate. Each set of patient age ranges for each available case study has indicated that the middle age to the elderly population is the most common patient for GBM. Findings of statistically significant over- or under-expressed HLA Class I genes and cytokines along with exploring the potential influence cytokines may have on HLA genes could help shed more light on the interaction between immunity and cancer.

POSTER: BIO - 10

Meta Analyses of the Impact of Differential Gene Expression Patterns on Patient Overall Survival in a Panel of Cancers

Alice Mensah, Nawalagedona Senanayake, Karam Afaneh, Fatima Kamara

Faculty Mentor: Professor Nancy Liu-Sullivan

Department of Biology

Despite progress made in cancer studies, cancer remains a health concern. A complex disease, there are still so many aspects of cancer yet to be elucidated. One topic pertaining to the association between gene expression patterns and cancer patient overall survival is our research focus. In this presentation, we shall describe the PI3K/AKT/mTOR oncogenic signal transduction pathway found to be the culprit of multiple cancer types including breast cancer, lung cancer, kidney cancer, and stomach cancer. We shall also describe oncology drugs that target key components of this pathway. More importantly, we shall discuss our findings that highlight gene expression patterns of key components of this signaling cascade and how those patterns impact on patient overall survival in the panel of cancers described above. Our findings help shed additional light on how differential impact of cancer gene expression exert distinct effect cancer patient overall survival, reinforcing the notion of cancer's complex landscape in that the same oncology drug that targets a particular cancer gene works in unique mechanisms in a cancer type-dependent manner.

POSTER: BIO - 11

The Effect of Erlotinib on Epidermal Growth Factor Receptor in Cancer

Nourhan Elzayat

Faculty Mentor: Professor Nancy Liu-Sullivan

Department of Biology

Effective treatment of cancer is primarily due to complex signaling networks that enable cancer cell growth, differentiation (how much or how little tumor tissue looks like the normal tissue it came from), migration, apoptosis (cell death), and drug resistance. The epidermal growth factor receptor (EGFR) gene is a more frequently mutated gene in many cancer types. While the EGFR mutation is correlated with increased overall patient survival in some cancers with a major pharmacological inhibitor like Erlotinib, it is still unclear how effective these current drugs are in reducing cancers associated with the mutation. Certain isoforms of the EGFR gene expressed at specific levels have been found to increase overall patient survival. To understand the effect of Erlotinib on cancers in general, we will conduct a study on EGFR on cancers including lung, breast, ovarian, and stomach cancer. In addition to assessing drug efficacy, we will also determine how different EGFR gene expression levels affect overall patient survival in the four types of cancers described above using the Kaplan-Meier database. This database shows the probability that a subject will survive for a given length of time. Through this, it was determined that when specific isoforms of EGFR are expressed at high levels, overall patient survival increases. This is especially true for breast cancer.

POSTER: BIO - 12

Investigating Mechanism of Action of Cancer-causing Effect of N-nitrosodimethylamine

Sarah I Owda

Faculty Mentor: Professor Nancy Liu-Sullivan

Department of Biology

We are surrounded by carcinogens all around us. Carcinogens cause cancer which happens because of a DNA mutation. One of the essential carcinogen substances that has been found in many medications and products is N-nitrosodimethylamine. This substance is present in cigarettes besides the other 70 substances that can cause cancer in cigarettes. According to many studies and research, most people with lung cancer are smokers or have smoked for a while. Therefore, there is a direct correlation between N-nitrosodimethylamine and cancer. In this humble research paper, I will be talking about the chemical structure of N-nitrosodimethylamine, how cancer occurs, smoking habits and the fact that smoking causes cancer, and the daily products that we use which contain N-nitrosodimethylamine.

POSTER: BIO - 13**Literature Review and Meta-Analysis of the Neurological Manifestations Reported in Coronavirus-Infected Patients and Patients not Infected but who Received COVID-19 Vaccinations****George N Khoury**Faculty Mentor: Professor Faiza Peetz
Department of Biology

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus, which caused the COVID-19 pandemic worldwide. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Evidence has shown that coronavirus can target the Central Nervous System (CNS) due to overexpression of Angiotensin-Converting Enzyme 2 (ACE2) in nervous tissues and proinflammatory cytokines that could affect vascular endothelium and elevate Blood-Brain Barrier (BBB) permeability leading to neurotropic effects. Over 20 studies have estimated the prevalence of early neurological complications in COVID-19 patients to be ~23%, and over 12 studies have estimated a mortality rate of COVID-19 patients with neurological complications to be ~29%, which is not as high as the mortality due to respiratory complications estimated at ~39%. Nevertheless, they are considered high. This high prevalence may contribute to the early diagnosis of severe respiratory disease present with COVID-19, death prevention, and transmission control to other healthy individuals.

This systematic review aims to investigate neurological manifestations reported in coronavirus-infected patients and patients not infected but who received COVID-19 vaccinations.

POSTER: BIO - 14**Colocalization of Protocadherin Cytoplasmic Domains with Regulators of Endocytosis****Zeinab S Cisse**Faculty Mentor: Professor Greg R Phillips
Department of Biology

Clustered protocadherins (Pcdhs) are a family of ~60 cell adhesion molecules expressed in the nervous system. These proteins are thought to generate a unique barcode on the surfaces of individual neurons that allow neuronal processes to recognize themselves and other cells helping guide the proper pattern of connectivity. The activity of Pcdhs in cells is somewhat ambiguous. Unlike typical cell adhesion molecules, Pcdhs seem to be found most often in an intracellular pool that corresponds to endosomes with relatively less expression at the cell surface. We hypothesize that proteins involved in intracellular trafficking regulate the activity of Pcdhs through intracellular interactions with the Pcdh cytoplasmic domain. We have found that Pcdhs are strongly colocalized in cells with proteins that control endocytosis, including clathrin and intersectin and have mapped the portion of the Pcdh cytoplasmic domain that mediates this colocalization. Here we now study the colocalization of these proteins with short cytoplasmic fragments, called stubs, that lack the extracellular adhesive domain as well as the common cytoplasmic portion common to all Pcdhs. These studies will shed light on the regulation of adhesion through Pcdh intracellular trafficking.

POSTER: BIO - 15**The Neurological Effect of Per- and Polyfluoroalkyl Substances (PFAS) among New Yorkers****Ayotunde Anidugbe**Faculty Mentor: Professor Shiryn Sukhram
Department of Biology

Per- and polyfluoroalkyl substances (PFAS) exposure is a global public health problem that affects millions of people every year. PFAS are potentially neurotoxic and human exposure could affect neurological structures that may have harmful effects on the central nervous system (CNS). Experimental studies in rodents suggest that PFAS contribute to depressive symptoms. However, few studies have examined the impact of these chemicals on mental health effects in humans. PFAS are unique synthetic chemicals known for their use in products universally utilized

by consumers and industries. They are toxic pollutants that are long lasting in the environment due to their carbon-fluorine backbone, which accounts for their chemical stability, makes them impervious to degradation, and strengthens their persistence in the environment. The extensive use of PFAS in industrial processing over many decades has worsened the contamination levels in terrestrial and aquatic habitats, which consequently affects humans. Research indicates high levels of PFAS in benthic macroinvertebrates from the Hudson River stream pathway, resulting in bioaccumulation in the tissues of fish and wildlife. Long chain compounds like perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are the most abundant PFAS and significantly associated with adverse health effects. The blood brain barrier and dopaminergic areas embedded within the CNS are highly susceptible to infiltration by PFAS, such as the brain stem, hypothalamus, cerebellum, and cortex. To address this global concern, this study aims to identify associations between PFAS exposure and psychosocial risk factors on neurological outcomes in New York citizens. Public health awareness of the adverse effects of PFAS should be promoted among high-risk populations.

POSTER: BIO - 16

The Impact of Microplastics on the Carbon Cycle of the Ocean

Alexander D Pascone

Faculty Mentor: Professor William G Wallace
Department of Biology

Climate change is one of the most important environmental issues facing mankind. The ocean is the largest reservoir of carbon and plays a key role in modulating global CO₂ and by extension, global climate. Therefore, changes in the cycling of carbon within the world's oceans can have a profound effect on climate change. It is estimated that 33 billion pounds of plastic enter the ocean annually, and over time, this anthropogenic material degrades into smaller and smaller particles known as microplastic particles. These particles can then impact marine organisms in a variety of ways such as the leaching of toxic chemicals or by entering marine food chains. If ingested (and then subsequently, egested) by small planktonic organisms, the buoyancy of their waste products (that contain undigested carbon) could be altered, thereby altering the flux of carbon to the deep sea.

To observe the potential impact of microplastics on marine life I chose marine grass shrimp (*Palaemonetes Pugio*). A mixture of food and gelatin was produced and fed to 6 shrimp. Shrimp were observed for approximately 3 hours and their waste was then collected. The settling rates of the fecal strands was assessed by recording the time required for the strand to fall 10.5 cm in a 100 mL graduated cylinder filled with 20% salinity water. This step was repeated with fecal strands from food containing microplastics. The settling rates were on average 65 seconds and 75 seconds respectively. Current observations such as completely translucent waste and an increase in the production of fecal strands suggest that the microplastics create a disturbance in the digestive tract of the *P. Pugio*. At present, the data suggests that due to packing within fecal strands, typically more buoyant MP settle slower. Currently, I am preparing a new form of microplastic food composed only of microplastics and algae and I aim to observe and record the impact of the microplastics on the digestive processes of the *P. Pugio* and the settling rate of their waste. Understanding how anthropogenic processes influence the carbon cycle can provide insight as to how to best cope with this global phenomenon.

POSTER: BIO - 17

Meta-analysis of the Consequences of Untreated Supraventricular Tachycardia

Andrew W Ngai

Faculty Mentor: Professor Muhammad Zia
Department of Biology

Supraventricular tachycardia (SVT) is a heart irregularity characterized by a heart rate of 150 to 220 beats per minute. In the United States, it occurs in approximately 1 in every 500 persons and can be classified into four main groups: (a) atrioventricular reciprocating/reentrant tachycardia, AVRT; (b) atrioventricular nodal reentrant tachycardia, AVNRT; (c) atrial tachycardia, AT; and (d) atrial fibrillation, Afib/AF. This meta-analysis discusses different treatment modalities for each type of SVT, their efficacy, and the consequences of non-compliance with them. Some treatments are conservative and non-invasive, while others are minimally invasive using intravenous medications, external electrical conduction, or cardiac procedures. Understanding the importance, treatment efficacy, and consequences of non-compliance with these treatment modalities will improve patient care for both health care providers and their patients.

This study will aim to provide a simplified review of each subgroup of SVT and the possible consequences that a patient may experience if the condition is not recognized or treated in a timely manner. We will conduct a meta-analysis of previous studies using databases from PubMed, The New England Journal of Medicine (NEJM), the Journal of American Medical Association (JAMA), as well as recent guidelines from UpToDate. Exploration of the various modalities used to treat SVT will be discussed based on the most recent treatments available to help health care providers provide better care for their patients.

This research will aim to develop algorithms that determine the best sequence of treatments based on the patient's specific condition. The algorithm will be divided based on patient stability. A patient is considered unstable if their blood pressure is 90/60 mmHg or lower, and their mean arterial pressure is less than 65. Stable patients are those with a blood pressure higher than 90/60 mmHg, and a mean arterial pressure greater than 65. Symptoms such as palpitations, chest pain, shortness of breath, dizziness, hypoperfusion/shock, and sudden cardiac death will be considered throughout the progression of the algorithms.

CHEMISTRY

POSTER: CHM - 01

The Optimization and Use of Chitosan- Carbon Dot- Nanogels for Targeted Drug Delivery of a Curcumin - Chemotherapeutic Agent against Glioblastoma

Alaa Hamdan

Faculty Mentors: Professors Probal Banerjee and Shuiqin Zhou
Department of Chemistry / Biochemistry

Hydrophilic nanogels continue to be optimized for the purpose of targeted drug delivery of curcumin and a chemotherapeutic agent against glioblastoma. Glioblastoma is a chemotherapy resistant tumor and most patients do not survive past 15 months of diagnosis. This project involves the optimization of a nanoparticle drug delivery system to carry curcumin and chemotherapeutic agents directly into tumors for degradation. Curcumin is a natural compound with a multitude of elements against cancers yet their low biocompatibility makes them difficult for research use. Nanoparticles provide a solution by providing capacity for drug transport through the body. The optimization of nanoparticles into ideal drug delivery nanogels is underworks through the use of an organic polymer known as Chitosan. A particle in the range of 1-100 nm exhibits properties that are not seen in any other size. The nanoparticles are optimized for targeted and controlled drug delivery of the curcumin (CC) and chemotherapeutic agent (CA) to multiple standards. The first is biocompatibility which is aimed to be achieved through optimizing pH and temperature of the nanogels. This coincides with cytotoxicity. The nanogels must be highly toxic to the tumor cells while simultaneously harmless to the body. The nanogels must also be biodegradable when placed in vivo in the later phases of the research. The nanogels are monodispersed, achieved through a filtration apparatus and dialysis procedure. Promising results were acquired through the recording of nanogel size and distribution in dynamic light scattering (DLS), Transmission Electron Microscopy (TEM) and Ultraviolet spectroscopy (UV-VIS). Chitosan nanogels were optimized to an average size of 150 nanometers. Also, carbon dots were prepared and optimized to about 20 nanometers. Chitosan nanogels were encapsulated with carbon dots to reach an average size of 150 nanometers as well. Carbon dot encapsulated chitosan nanogels (CS-CD-NG) were placed into mice brains for assurance of localization and selectivity. Lastly, curcumin and a chemotherapeutic agent were separately encapsulated into CS-CD-NG at a specified encapsulated efficiency and in vitro as well as in vivo procedures were performed to test for drug release patterns at different pH levels.

POSTER: CHM - 02

S100A12 and CD36: Investigating their Binding Affinity and the Implications for the Treatment of Inflammatory Diseases

Ahava Collado

Faculty Mentor: Professor Rupal Gupta
Department of Chemistry

S100A12 is a human antimicrobial protein belonging to the large S100 family of proteins. S100A12 demonstrates antimicrobial activity by sequestering zinc from the invading microbes, which require zinc for its survival. It is thought that the protein could be used as a marker for disease, because it generates proinflammatory responses within the human body through interactions with RAGE and Toll-like receptor 4. CD36 is a scavenger receptor protein that transports fatty acids and is implicated in the pathogenesis of atherosclerosis. This work investigates the relationship between S100A12 and CD36 and the mechanism behind their association. The activity of CD36 is proposed to be modulated by S100A12. Thus, by directly examining S100A12 and CD36 interaction, more information can be gained in regards to the human body's inflammatory response and its connection to atherosclerosis.

POSTER: CHM - 03**Visualizing Interactions between Receptor for RAGE and S100A12 Binding and Signaling with YFP and CFP****Shaan Shirazi, Diego Franco**Faculty Mentor: Professor Rupal Gupta
Department of Chemistry / Biochemistry

S100A12 is a protein that belongs to the S100 family of calcium-binding proteins which is secreted by neutrophils, monocytes, and other immune cells in response to inflammation or infection. It is known that S100A12 plays a role in the innate immune response due to its binding and activating of the receptor for advanced glycation end products (RAGE) on various cell types. S100A12 has been implicated in several pathological conditions, including chronic inflammation, cardiovascular disease, and cancer. To visualize the interactions between RAGE and S100A12 in vivo we propose to monitor fluorophore-tagged RAGE via fluorescence resonance energy transfer (FRET) and confocal microscopy. We present our work on developing plasmids capable of generating RAGE fusion proteins with cyan fluorescence protein (CFP) or yellow fluorescence protein (YFP) by polymerase chain reaction (PCR) and gel electrophoresis. Our ultimate goal is to use the RAGE-CFP and RAGE-YFP fusion proteins to study protein-protein interactions, signaling pathways, and other biological processes using fluorescence resonance energy transfer (FRET).

POSTER: CHM - 04**Determining the Efficacy of a Zinc Phthalocyanine Photosensitizer for the Eradication of E. coli in Photodynamic Therapy****Aya Ashour**Faculty Mentor: Professor Alan Lyons
Department of Chemistry

As a result of poor wastewater management, the presence of pathogens in our bodies of water has great harmful effects on human health and the quality of water being utilized. Typically, wastewater is chlorinated as a means of disinfection, but will often form toxic chemical byproducts that remain in our water sources. Photodynamic therapy (PDT) can be a potential alternative for disinfection without the production of toxic byproducts. PDT is a noninvasive treatment method that involves the combination of a photosensitizer (PS), light emitted from a laser or LED, and molecular oxygen to create a reactive oxygen species that can be used for antimicrobial purposes. The reactive oxygen species, singlet oxygen, is produced by a Type II photochemical reaction. Upon illumination from a laser or LED, the light energy is absorbed by the photosensitizer and transferred to the ground-state oxygen to form singlet oxygen. Singlet oxygen is the lowest excited state of diatomic oxygen and is known for its cytotoxic abilities. The focus of this research is to quantify the amount of singlet oxygen required to eradicate E. coli, a gram-negative bacterium that often contaminates our water sources. A zinc phthalocyanine PS is used in planktonic cultures of E. coli at different concentrations. The killing efficacy, measured by the change in colony forming unit (CFU) per ml, was determined as a function of light fluence and PS concentration.

COMPUTER SCIENCE

POSTER: CSC - 01

Image Encryption via Bit-Plane Decomposition and Scrambling

Maxim Voyevoda

Faculty Mentor: Professor Sos Agaian

Department of Computer Science

Efficient and reliable image encryption has become essential in light of the growing number of privacy-sensitive images being produced daily, including those stored in popular cloud photo services or medical records, as it ensures the security of these images. Images often contain personal information that users may not wish to reveal. Image encryption is a method that can transform an image into an unrecognizable form or noise-like image to minimize any trace of its source. Decryption can reverse this procedure and restore the image to its original, unaltered form. To address this issue, this project proposes a solution that utilizes bit-plane decomposition and a scrambling algorithm. A simple tool has been developed to encrypt and decrypt images while ensuring zero loss of information. The effectiveness of this method can be accurately measured using histogram analysis and visual observation. Generally, this project provides a practical and reliable solution for image encryption, which is becoming increasingly important in today's world of privacy concerns.

POSTER: CSC - 02

Tracking Powerlines in Panoramic Images

Michael A Rivera

Faculty Mentor: Professor Sos Agaian

Department of Computer Science

Tracking power lines in images is useful for aerial vehicles flying at low altitudes. These vehicles need to recognize the shape of the powerlines at all orientations. Therefore, it is important to track powerlines accurately and quickly with low computational resources. The goal of this research is to develop an image-processing pipeline that can capture the shape of a powerline and run fast enough to be practical.

The proposed pipeline consists of the following steps: First, morphological methods are applied to reduce the details in the image. Second, the image is segmented into a binary image and transformed into Hough's space. Third, gradient climbing and DBSCAN are used to cluster the points in Hough's space and identify curved powerlines. The advantages and limitations of this pipeline are discussed and compared with other methods that use only morphological processing for object avoidance.

POSTER: CSC - 03

Peptide Modeling Pipeline

Nadzeya Fliaha

Faculty Mentor: Professor Sharon Loverde

Department of Computer Science

The aim of this research is to create a Pipeline for modeling peptides of varying lengths and sequence using molecular dynamics simulations. We are simulating charged peptides based on Lysine alternating chirality of varying lengths. From these simulations, we will extract the radius of gyration. We hypothesize that the radius of gyration of the peptide will be proportional to the length of the individual peptides. We propose to fit the resulting simulation results with linear regression. Future work can map these same peptides to a coarse grained model which is less computationally expensive, however many more simulations can be easily performed to develop a comprehensive database for the structure of short engineered peptides.

POSTER: CSC - 04

Movie Recommender System

George Melek

Faculty Mentor: Professor Sarah Zelikovitz

Department of Computer Science

There is a common problem experienced by those who enjoy watching feature films and television series: not knowing what to watch next. Various solutions have been implemented, from Netflix's percentages predicting how much a movie will "match" the user's previous interests to websites such as agoodmovietowatch.com, that output random movies deemed "good", or "enjoyable" for a wide audience. This research approaches the recommendation problem by using movie features and content to determine movie recommendations. By using a combination of attributes, such as the streaming service(s) the film is on, genre, and movie descriptions, users will be able to find their next movie or tv show to enjoy. Our application will not require user registration and will only ask the user to fill out a short questionnaire.

POSTER: CSC - 05

Modelling Compound Flooding on CSI Campus

Simon Christian

Faculty Mentor: Professor Zhanyang Zhang

Department of Computer Science

New York City is increasingly affected by floods from extreme weather events and rising sea levels. Coastal neighborhoods are prone to undergo high-tide floods which destroy infrastructure and reduce property value. Hurricane Henri and Ida hit New York City in 2021 with unprecedented rainfall, causing millions in damages and several deaths.

In an effort to combat this growing threat, we aim to model flooding of complex systems. We have utilized multimodal sensors with several gauges for precipitation and other relevant information such as tides and storm surges. This project requires multiple data inputs such as rainfall, tides, wind, land use, etc. Furthermore, we account for the geography of land in the model, such as topography, elevation, drainage, plumbing and infrastructure which are key features to determine an area's susceptibility to flood. We aim to utilize the data collected to integrate it into a predictive model with artificial intelligence and machine learning. Our research began right here on the College of Staten Island campus, and will later be generalized to all of New York City. People to act self interested. So while this is not perfect for modeling behavior, it was a good.

CURRICULUM AND INSTRUCTION

POSTER: C & I - 01

The Art of Mathematics Education

Kristiana Nicotra

Faculty Mentor: Professor Alanna Gibbons
Department of Curriculum and Instruction

It is an educator's goal to enlighten students and give them access to the knowledge and skills they need to succeed in life and help their fellow peers. One such valuable tool is that of mathematics, which plays an intricate role in the world all around us. However, many students find the subject quite daunting, so much so that there even exists a phenomenon known as "math anxiety". That is where teachers step in, utilizing various educational methods to make mathematics more accessible to their classes. Indeed, learning such material is an important part of one's academic upbringing, and it is important to teach it in a way that is intriguing, engaging, and accommodating to the individual needs of pupils.

In this research project I will illustrate several of the ways in which adolescent mathematics teachers strive to make the learning environment and experience welcoming and positive for their classes. Such strategies include differentiation, purposeful activities, and the promotion of academic equity. Not only will I depict these through writing, but also through my own artwork. Each piece is digitally rendered, accompanied by several sketches and written compositions documenting my process and interpretation. Through this project I hope to enable audiences to see mathematics education in a new and compelling light, just as teachers try to help students do the same.

POSTER: C & I - 02

Play Based Learning that Encourages Child Development and Number Sense

Bayan Khalil, Nour Maali, Yorquiea Suleiman, Nethma Jayaweera

Faculty Mentor: Professor Judit Kerekes
Department of Curriculum and Instruction

Mathematics is a boring concept that people don't often enjoy. But why is this? Children are taught mathematics as a set of rules to follow with no imagination or creativity. Mathematics is an art but we don't see it as one. An artist creates a piece of artwork through the freedom that is given to them. Could you imagine being in an art class but never being able to touch paint until you learn its ingredients and its proportions? We want to be the change in this world and show math as the artwork it is. Through play-based games such as rekenrek, the use of unifix cubes for bingo, and city making, we make math into the art form it really is, to strengthen a child's development.

POSTER: C & I - 03

Support School Children with Special Needs: The Impact of Attitudes of School Staff

Samantha M Colandrea

Faculty Mentor: Professor Ting Yuan
Department of Curriculum and Instruction

The attitudes of school personnel, both teaching and non-teaching staff, toward students with special needs affect the student's behaviors academically and socially. Previous research on this topic revealed that there are in fact differences in the attitudes of general education and special education teachers toward students with special needs. Others have provided an overview of factors to consider in creating positive school experiences for students with disabilities and suggestions for intervention efforts. My desire is to create knowledge that can be used by others to make a difference, such a difference that will be made when educators are aware of the power and impact that their attitudes have on the progress of students with special needs. Thus, yielded from multiple case studies that can be applicable to students with special needs and any student who deserves care and equity in the schooling system, I conclude that students need a positive and supportive educational environment in order to succeed to their full potential.

POSTER: C & I - 04

The Advancement of Computational Literacy: Name Stories and Computational Storytelling

Bayan Khalil, Rolla Khass, Nadeen Ahmad, Rebecca Moller, Jessica Abrajan, Bushra Alrawhani, Lauren Farley, Francesca Papalia, Julia Pietropinto, Victoria Siciliano, Erin Westgate, Abeer Ramadan

Faculty Mentor: Professor Ting Yuan
Department of Curriculum and Instruction

As modern technology advances so do the development of the learning curriculum of children. The program scratch is used to help students advance in their computational literacy and experience with computer science. The EDC218 class has come together to show you how we can use programs such as scratch in our classrooms to advance learning development within children. Who we are as people and where we come from means everything, our name is what represents us and how people remember us. We go through our name stories, and how we came to be, we encourage students to look into who they are, and using scratch we've created animations of our name stories. By using these programming tools we are able to strengthen children's understanding of the world that is growing around them. As they grow they will be able to flourish and develop the skills they need that previously weren't available to them.

ECONOMICS

POSTER: ECO - 01

Changes in Time Allocation During the Pandemic

Dennis W Cobbina, Michael Levitas, Shontel Nedderman

Faculty Mentor: Professor Alexandru Voicu

Department of Economics

This project analyzes changes in individuals' time allocation during the pandemic. We merged data from two sources, the 2017-2021 waves of the American Time Use Survey and the corresponding waves of the Current Population Survey. The theoretical underpinning of the empirical allocation is the neoclassical time allocation model. We estimate the effect of personal and socio-economic characteristics on time allocation using a multivariate regression model.

Preliminary results show substantial changes in the time allocation patterns with significant differentials across personal socioeconomic characteristics.

POSTER: ECO - 02

Changes of Wage Distribution During the Pandemic

Kevin Cruz Tapia

Faculty Mentor: Professor Alexandru Voicu

Department of Economics

This project studies changes in the distribution and the determinants of earnings during the pandemic. I use data from the 2019-2022 waves of the Annual Social and Economic Supplement of the Current Population Survey. Wage equations are estimated with yearly data using standard linear regression techniques, models that account for sample selection, and quantile regression models. The results are used to assess changes over time in gender wage differentials and changes in the effects of education and experience on earnings, and to compare labor market outcomes across industries and occupations. Finally, a Oaxaca-Blinder decomposition is used to investigate if changes in earnings distribution is due to a change in returns to personal characteristics or to changes in the distribution of these characteristics in the sample of labor force participants during the pandemic.

POSTER: ECO - 03

All Work and No Play? Sports Participation and its Determinants During the COVID-19 Pandemic

Christopher W Lombardi, Marwan Mahmoud, KinWai Lui, Thomas A Mazza, Christopher Edwards

Faculty Mentor: Professor Alexandru Voicu

Department of Economics

The COVID-19 pandemic induced dramatic changes in various aspects of society. Across the world, multiple governments implemented work-from-home measures aimed at reducing the spread of the virus. A relatively under-researched aspect of the health measures was their effect on sports participation. We analyzed the level of involvement in sports activity and its determinants before and during the pandemic. We primarily studied the effects of remote work on sports participation during the pandemic. To conduct this analysis, we utilized multiple waves of the American Time Use Survey (ATUS), including data from 2017 through 2021. The ATUS is completed annually by the United States Census Bureau (USCB). We merged the data with the corresponding waves of the current population survey. The empirical strategy addresses two issues: time spent on sports activity is censored at zero, and the level of involvement in sports activity is part of a broader time allocation decision. The preliminary results indicate that most decision-making regarding sports participation is at the extensive margin. Additionally, we discovered that personal characteristics substantially affect the decision to participate in sports at the extensive and intensive margin.

POSTER: ECO-04

Economic and Medical Effects of Interventionist Health Policies

Marwan Mahmoud

Faculty Mentor: Professor Bryan Weber
Department of Economics

Since the 1990s, the American populace has experienced a dramatic growth in obesity. Numerous studies have cited a variety of factors responsible for this increase. From a growing sedentary lifestyle to an increased consumption of sugary foods, the causes of obesity are well-researched. However, the means of solving or reducing obesity remain contested. More specifically, uncertainty remains when considering the effects of interventions by local and national governments; these interventionist policies face opposition from groups claiming they are ineffective. I examined data from the Centers for Disease Control (CDC). The data contained information relating to nutrition, physical activity, and obesity legislation. I combined this with data from the Behavioral Risk Factor Surveillance System (BRFSS) containing body mass index (BMI) and obesity data from all 50 states, and the District of Columbia (DC), over a wide range of years. After importing and merging the data into a city-by-year panel, I used a two-way fixed effect model to explore the association between public health legislation and obesity.

EDUCATIONAL STUDIES

POSTER: EDD - 01

Play-based Approach in Early Childhood Education: a Systematic Review

Danie Duka

Faculty Mentors: Professors Jinyoung Kim and Myung-Jin Kim
Department of Educational Studies

Discussion of play in children's holistic learning and development is not new. Since Froebel argued that children learn through play in the early 1800s, early childhood scholars have investigated the impact of play on teaching and learning, widely referred to as the play-based approach (PBA). It is a pedagogical method that allows children to learn through play, experience, and exploration (Shin, 2022). It provides hands-on, experiential learning opportunities that are engaging for children, where the teacher acts as a collaborator and facilitator rather than a direct instructor.

However, play seems to disappear in early childhood education (ECE) due to the pressure of standardized curricula and the vagueness of PBA (Miller & Almon, 2009; Nicoupolou, 2010). In other words, promoting play from early childhood instruction poses a substantial challenge. The present project, therefore, reviews empirical studies on PBA (from 2013 to 2022) to understand how successful and effective it is in promoting children's learning and ECE educators' teaching. The current review was informed by meta-synthesis, which is defined as "a family of methodological approaches to developing new knowledge based on rigorous analysis of existing qualitative research findings" (Thorne et al., 2004, p. 1343).

In our preliminary findings, we found out that play is defined variously by perspectives (i.e., free play, solitary play, fun experience) and PBA is defined differently by scholars (i.e., providing materials and environment, practicing the targeted concepts in pre-designed play, and social play). In addition, the purpose of PBA is to construct a playful environment where guided play and social interaction can occur.

The findings of this review will provide a thorough overview of PBA, the relevant play-based/hands-on learning, and multimodal teaching, as well as the major trends in the findings of the previous research. It also provides valuable insights into many pre-and in-service teachers to explore a contextually-sensitive model of PBA that will inform their teaching and research.

POSTER: EDD - 02

The Impact of Play-based Teacher Education Courses on Preservice ECE Teachers

Sydney Saulino

Faculty Mentors: Professors Jinyoung Kim and Myung-Jin Kim
Department of Educational Studies

Play is the major means through which children engage in and connect with the world, and it is an essential tool for educating young children (Nørgård et al., 2017; Shin, 2022).

PBA (Play-Based Approach) is a pedagogy that uses play as an essential medium in early childhood education (ECE) (Parker et al., 2022). Despite the importance of play in ECE, it is rapidly being forced out of ECE settings in the U.S. (Nicolopoulou, 2010). Also, little research has been done on the use of PBA in ECE teacher education. Shin (2022) highlighted the importance of adopting PBA in teacher education so that preservice teachers can learn about and understand "learning by doing" and expand their thinking about children's learning through play. The current study aims to enhance teacher candidates' understanding and application of PBA by showing how successful and effective it is to adopt PBA in teacher education.

The participants of this study were nineteen fourth-year ECE pre-service teachers at a public university in New York. 15 weeks of courses combined with fieldwork in primary-grade classes were provided. The students participated in PBA activities guided by instructors and analyzed their experiences and interpretation of these activities based on the theories in the provided readings. The data includes transcripts of class discussions and students' writing samples (reading responses, lesson plans, and reflections). The data analysis process was iterative following Saldaña (2021)'s coding cycle.

The preliminary findings show that the preservice teachers' initial perceptions of the PBA were very unclear. They weren't certain what PBA was or how to apply it in their classroom. Also, they felt that using play in primary classrooms is unrealistic (e.g., time, structure, and the messiness of play). In short, preservice ECE teachers proposed limitations and concerns on using PBA in the classroom (e.g., materials, school curriculum, classroom management). Over the courses, they become confident in using PBA in their teaching and understanding the various spectrums of PBA. The results suggest that college educators foster a supportive environment where the preservice teachers can experience and apply PBA to their practice and learn by critically analyzing their own practice.

POSTER: EDD - 03

Social-Emotional Learning (SEL)

Madison L Gorodovich, Brooke McKeon

Faculty Mentor: Professor Kalliope Valadakis

Department of Educational Studies

Social-Emotional Learning or SEL focuses on students' emotions and ways students can regulate them. It is a process where students gain more knowledge, skills, and coping techniques to improve their quality of living in and out of school. This project focuses on the implementation and effects of social-emotional learning (SEL) in a public school classroom. Participating in student-teaching in a Staten Island public school, allows us to witness first-hand accounts of the implementation of SEL and how it affects students, as well as teachers. SEL has become more popular across the nation since the pandemic. "Seventy-six percent of principals and 53 percent of teachers nationally reported that their schools used a social and emotional learning (SEL) program or SEL curriculum materials in the 2021-2022 school year" (L. H. Schwartz). There are multiple ways of implementing SEL throughout a school day in elementary classrooms. There are implementations such as "ruler check-ins", when the students place themselves on a "Mood Meter" and have to explain why they are feeling a certain way. Teaching them how to regulate their emotions and recognize the emotions of their peers may very well help them succeed inside and outside of school. When teaching any subject, teachers also make it a point to ask the students how this lesson, activity, or situation is making them feel during and after the lesson is done. This allows the teacher to monitor the students' progress or difficulties in the specific lesson and make suitable adjustments without pushing them too hard. SEL ties into what is called a "growth mindset" in the classroom and challenges students to improve their skills and to understand that continued effort in their work and learning various strategies will increase their knowledge, control their emotions, and will lead to success.

ENGINEERING AND ENVIRONMENTAL SCIENCE

POSTER: EES - 01

Project Espial: Analyzing Low-Grade Metamorphic Samples using Geochemistry to Uncover Suspected Volcanic Ash

Jay B Tobon

Faculty Mentor: Professor Jane Alexander
Department of Engineering and Environmental Science

An outcrop beneath the Palisades Sill was discovered during a construction project in North Bergen, New Jersey. Samples taken from the North Bergen expedition gave a better understanding of certain landmarks like channel deposits, clastic dykes, and metapelites. The geochemistry of these samples showed that as well, except for two samples. Both of these samples had a high concentration of thorium, which is a trace element used to trace volcanic ash. Further examination of these samples showed that these samples contained smoky quartz, a type of quartz that is dark, and gray in color due to radiation coming from the rock which is due to the high concentration of thorium. This project aims to expand upon our findings and take a closer look at these samples. Specifically we are examining the light and dark part of each sample. Major and trace element concentrations are being analyzed from both parts of each sample. We are also identifying the minerals in each sample by thin section microscopy. In this project we will be able to see if the dark part of these samples are volcanic ash which can help us better understand the types of volcanoes in the Newark Basin nearly 200 million years ago.

POSTER: EES - 02

Understanding the Morphology of Staten Island Beaches and the Effect of Storms on Them

Amaury B Acevedo

Faculty Mentor: Professor Jane Alexander
Department of Engineering and Environmental Science

During superstorm Sandy, the eastern coastline of Staten Island showed its vulnerability to storm surges as the neighborhoods around the surrounding area were extremely inundated, resulting in lives lost and billions of dollars in damages. After initial work and surveying that has been done earlier, the beach in question is thought to be reflective, suggesting limited seasonal changes but can exhibit significant erosion during major storm events. This current work expands on the initial work done in 2018 by taking regular beach surveys over the course of a year. These surveys consist of measuring the slope of the beach in 2-meter intervals, as well as collecting sediment samples at the low tide ridge, the high tide mark, as well as other significant locations throughout the beach. Two surveys that have been conducted during the summer and fall of 2022 support the hypothesis that the beach is reflective, however there was noted erosion at two locations alongside build-up of sand behind large groins. Utilizing geospatial data analysis techniques on data collected in the field will help predict the future response of the coastline to storm events as well as the effects of sea level rise.

POSTER: EES - 03

How Geochemistry Illustrates our Past

Medina Hajdarevic

Faculty Mentor: Professor Jane Alexander
Department of Engineering and Environmental Science

Geochemistry plays an essential role in our understanding of the earth around us. It allows us to better understand and identify the rocks and minerals that make up our environment. Through research we are able to explore our past and create ideas of what the world may have looked like 20 million years ago. The focus of our project is to identify the sources of sediments that make up the rocks in the Boso Peninsula in Japan, using major, trace, and rare earth elements. Our secondary goal is to gather relevant data to confirm our hypothesis that there may have been volcanoes in the area. Based upon previous research, when rock samples were collected from locations that were carefully mapped, we are working to determine their mineralogy and geochemistry. We observe mineralogy in

thin sections; a thin flat piece of rock prepared for examination with a microscope. We have found glass shards which are commonly found in areas that have experienced volcanism. Currently we are preparing our rock samples by powdering them using a Spex mill and sending them out for analysis by ICP-MS and ICP-AES to determine their geochemistry. We are also utilizing ArcGIS to georeference paper field maps and notes, to create maps of the area where our samples were collected. This allows us to demonstrate how the source of sediments and volcanic eruptions changed through the area and over time.

POSTER: EES - 04

The "Smart Cane"

Asher J Abraham, Jeremy Bodin

Faculty Mentor: Professor Xin Jiang
Department of Engineering and Environmental Science

The "Smart Cane" is an intelligent device that helps the elderly reduce collision and falling risks by detecting and alerting the user of upcoming obstacles as well as actively monitoring their heart rate and reporting abnormalities. The elderly may be vulnerable to collision and falling due to their poor eyesight, or lack of visibility at night, as well as dizziness caused by hypertension. The cane can lower the risks using three unique subsystems to target these commonplace issues the elderly may encounter. To prevent collisions, an ultrasonic sensor is used to detect upcoming obstacles within the ranges of 0-2 ft, 2-4 ft, and 4-6 ft. The collision avoidance subsystem also contains a buzzer that can emit a distinct frequency of sound, a motor that can vibrate at different frequencies, and a speaker that can tell the ranges of the detected object. If the cane is used in a poorly lit area, a flashlight subsystem can be turned on to use the LEDs installed at the base of the cane to light the path. To prevent falls from dizziness, a pulse sensor subsystem was created. The subsystem will continuously measure the user's heartbeat using a pulse sensor incorporated in the cane's handle and notify a predetermined emergency contact using Arduetooth, a Bluetooth application, if the heartbeat exceeds 100 beats per minute (BPM). The "Smart Cane" enhances an ordinary cane by making common dangers a thing of the past.

POSTER: EES - 05

Maglev Focus Fan

Jubal N Noel, Jediah N Noel

Faculty Mentor: Professor Xin Jiang
Department of Engineering and Environmental Science

The Maglev Focus Fan is a fan that will operate using magnetic levitation and propulsion to reduce friction and maximize its efficiency. To minimize friction, traditional fans may use either ball bearings or lubrication. However, this prototype will use magnetic levitation to remove surface contact around the bearing. To improve efficiency, a microcontroller, e.g., a raspberry pi, will be used to optimize airflow by actively reading the temperature in the room as well as thermal tracking the users to adjust the speed, direction, and turn on/off automatically.

The prototype consists of a fan case mounted on top of a pedestal column whose rotation is controlled by a 360° range servo motor. Inside of the fan case will be the magnetic bearing levitating over the fan shaft with the fan blades connected around it. The shaft will use electromagnetic coils powered by an analog circuit to form electromagnets to levitate the magnetic bearing. This levitation is then stabilized by a negative feedback loop and position sensors in the fan. Furthermore, outer electromagnets, placed along the perimeter of the fan case, will interact with the fan blades and cause them to rotate. There will be two integrated software modes—tracking and power saving. For tracking mode, a thermal camera situated directly below the fan case will locate and track individuals through their heat signature. For power saving mode, the fan will adjust speed or shut off based on the temperature measured by a thermal sensor and whether or not users are detected by the camera.

Poster Presentations

POSTER: EES - 06

Smart Recycle

Avi Szczupakiewicz

Faculty Mentor: Professor Chang-Min Kim

Department of Engineering and Environmental Science

This project aims to develop an AI/ML-powered recycling bin that can sort and separate different types of recyclable materials, such as plastic, glass, metal, and paper, using linear rails to deposit them into the correct receptacle. The system utilizes a combination of computer vision and machine learning algorithms to identify and classify different materials. The system then employs a movable caddy on the linear rails to transport them above the trash and drop them in by removing the bottom of the caddy. The project involves the integration of several hardware components, including cameras, sensors, motors, and microcontrollers, as well as the development of custom software to control and coordinate these components. The proposed Smart Recycle has the potential to improve the efficiency and accuracy of recycling, reducing contamination and promoting sustainability.

POSTER: EES - 07

AutoWrap

Brandon Auerbach

Faculty Mentor: Professor Chang-Min Kim

Department of Engineering and Environmental Science

Introducing AutoWrap, the automatic cable wrapper that you always needed! This device provides a faster, easier, and more efficient way for musicians to wrap their guitar, microphone, or speaker cables under 30 feet in length, helping to keep them organized and prolong their use. By simply feeding the cable through the drum opening, locking it into the cable clip, and pressing the ON button to start the motor, the cable will begin to wrap in on itself by rotating along the internal wooden wheel. The system will then stop once the cable is fully fed through the opening as a result of the laser transmitter striking the receiver, which indicates that there is no longer a cable interfering with the signal. Consequently, a perfectly wrapped cable is provided! This device implements the programming of an Arduino microcontroller using the Arduino IDE to both start and stop a motor as well as an understanding of the mechanics involved in wrapping a cable. Various other materials were also used to produce this project, such as an Arduino Motor Shield, wood, motor mounting hubs, a breadboard kit with wires and circuit components, and a 12V battery pack.

POSTER: EES - 08

Smart Network for Non-Smart Devices

Catherine Rimerov, Aman Dhillon

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

Urban power consumption is steadily becoming a major issue in the United States, with blackouts becoming a common occurrence, especially in the summer months. This causes areas to lose power, sometimes for many days, and in many cases water systems are also affected which can be disastrous. Households with backup generators can provide themselves with power during such periods of blackouts, but not everyone is able to afford or has access to a generator.

A method of avoiding a blackout is causing a brownout, which is when energy provided in the grid is lowered by a certain amount. Ideally a push towards energy conservation - that is, working towards using less energy - is the most viable option to keep the problem under control. With this in mind, we focused on a way to control non-smart devices throughout a household in order to lower electrical consumption to both save on electrical costs and avoid blackout situations.

Non-smart devices are unable to operate on an independent schedule or be accessed remotely, while smart devices communicate on a specified network, such as Bluetooth or Wi-Fi, to act either independently or carry out pre specified tasks.

The prototype system created operates mainly on modules which use radio frequencies to communicate, similarly to cell phones, and can interact with external hardware to control devices as necessary. The main feature of the system is the ability to remotely turn off and on devices, but other monitoring features could be added depending on the user's needs.

POSTER: EES - 09**Color Matching Tool****Abusayem Mahfuj, George B Salama, Gabriele G Wagner**

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

The color matching tool aims to provide a method for conveniently replicating colors a user may encounter in regular day-to-day situations. The best use for this tool would be to copy a specific paint color, without needing to either obtain a color swatch or palette from a paint vendor or take a sample from the paint color. This potentially eliminates a trip to the store, saving the user both time and money.

The color matching tool's method works by taking a photograph of a selected color on a generic smartphone's camera, retrieving the 'color code', or the photo's color information, and applying an algorithm to this information. The color code is comprised of three values - Hue, Saturation, and Brightness. A Hue is the color you'd typically refer to by name such as Green, Blue, Yellow, and everything in between. Saturation is the intensity and purity of a color, on a scale between pure gray and a pure hue; increasing saturation generally correlates with a perceived increase in vividness and intensity. This algorithm adjusts the stored color values to produce a color which better approximates that perceived by the human eye, as determined by this group's members.

In the process of collecting data, we've discovered trends specific to each of the color groups we've sampled. The green shades generally require a very high increase in saturation for the image depicted on-screen to roughly match that we perceived and agreed upon, especially as the green shades move towards blue and away from yellow. All blue shades required a significant decrease in brightness. All blue and red shades required a moderate increase in saturation. Yellow shades generally required very little adjustment.

POSTER: EES - 10**Prevention of Water Flooding in Basement****Mayar Abdelmoneim, Wei Zhu**

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

Water flooding in the basement is a big problem that can destroy valuable things, especially for people who use the basement as storage. There are two main reasons that cause flooding. One is the water leak due to a broken pipe in the wall. The other one is a water leak from outside due to construction failure. In this project, assuming that the basement is built properly, any leaking water will flow into a hole eventually.

A system to place around the hole can detect the leaking water. The system contains two parts, a rain level sensor, and a microcontroller. If a flood happens, the water level around the hole will be raised. At this time the sensor will be dipped into the water. According to how far the sensor is dipped into water, different voltage signals will be sampled every 5 seconds. The microcontroller will organize the samples to compute the estimated water level then send an email or message to the user and warn the user to take action for the flooding in the basement.

The first step to building this system was taking measurements by placing the sensor into the water with a depth from 0 to 35mm and recording the sensor reading value from the microcontroller at each different level of water value that was every 5 millimeters. Five sets of data, water level vs sensor readings, had been taken.

POSTER: EES - 11**Reduce Energy Consumption in Households****Jabari Gallier, Hamzah Farah, Ankesh Srivastava**

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

This project's objective is to track the natural energy coming from a window in a room and use solar energy as an alternative source of light and heat in order to reduce the consumption of electricity in households. The solar energy that enters a room through the windows as natural light transmits energy in watts per area squared (irradiance). This energy is transferred to the room as thermal energy observed by objects in the room and eventually increases their temperature. This energy can substantially affect and increase the temperature of the entire room.

Poster Presentations

Our project consists of two temperature sensors and one light sensor. One of the temperature sensors was placed on the outside of the window for outdoor temperature measurement and one on the inside for indoor temperature measurement. The system will be autonomous, meaning that the user will not have to manually operate this themselves, the system will do this automatically with no user input. Depending on the comparison of the temperature reading between the inside and outside, day or night, winter or summer, and a person in a room or not, the blinds will open and close automatically using a stepper motor that operates the blinds. And so, by shutting off the lights when it's not needed and reducing the active time of a household's HVAC system, we would be saving a large amount of energy. Based on our initial calculations, we have seen savings of up to 48 kilowatt-hour monthly in a single isolated room. This system, when implemented throughout a house can save a lot of electricity that is being wasted every day, and it even recovers its own cost within roughly a month of operation.

POSTER: EES - 12

Determining Safety of a Structure

Abdul-Rasaq M Ishola

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

This project determines the safety of a structure with a cost-efficient strain gauge. Strain gauges are meant to calculate the length of which a material stretches when weight (a force) is applied to the surface. There are many factors to consider when dealing with the safety of a structure. The analysis of a cantilever will show how successful this project is in handling the safety of a structure. A cantilever beam was chosen due to its uncomplicated design and area of strain being easy to find. The structure created will be used to show how the device created will help in solving the problem focused on in this project.

There are two main objectives in this project. The first being how to read the very small outputs the strain gauge omits. This process requires the use of a circuit. The circuit will have one stable output that will change depending on what the strain gauge outputs. The microcontroller is meant to power the circuit and read the changes in values the circuit outputs. The second objective is creating a system of values for the microcontroller to display to make the changes on strain easily readable.

POSTER: EES - 13

Saltwater Marshes Against NYC Water Disasters

Peter Wang

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

Marshes have a direct impact on how vulnerable city infrastructure is. Marshes should be implemented into city development since they act as a barrier between vulnerable coasts and properties. It absorbs water and prevents overflow from reaching inland, preventing coastal property damage. Marshes are also natural sponges. One single acre of saltwater marshes can hold 1.5 million gallons of floodwater. New York City is most vulnerable to hurricanes and water disasters; therefore, I analyzed the impact of marshes on water quality and flood prevention. As an intern for a startup focused on incorporating IoT technologies into environmental science, I obtained water quality data from prominent NYC landmarks like Coney Island, Marine Park Salt Marsh, and the East River. For example, I collected water quality data from Marine Park Salt Marsh at both low and high tides. During low tide, I gathered water data on the trail. I analyzed how the tides carved into the banks of the river. During high tide, I utilized a kayak circling the island inside the marsh to monitor changes in conditions by placing the machine on the kayak and sticking the probe into the water.

Upon analyzing the data, I discovered that water quality in marshes is superior to water conditions in areas like the East River. The water quality in marshes steadied between healthy limits while other locations experienced dips or spikes in water quality. Additionally, I observed that the tall grass in marshes had roots that stabilized the banks of the inlet. In contrast, social media often showed water from the East River overflowing and seeping into sidewalks and pavements.

These observations provide important insights into the critical role marshes play in maintaining water quality and preventing flooding. Data can inform us to establish marshes to protect NYC's infrastructure and waterfront.

POSTER: EES - 14**On the Automatic Tuning of a Drum****Kevin Patzer**Faculty Mentor: Professor Alfred Levine
Department of Engineering and Environmental Science

I have designed and implemented an automated process for tuning or adjusting the frequency of a musical drum. For musical instruments to sound good they need to be in “tune” with one another. Tuning requires adjusting the physical properties of the instrument. On a drum, the drumhead is stretched or relaxed by turning screws around the rim of the drum. Tightening the screws tensions the membrane and raises the pitch to make it sound closer to a shrieking whistle. Loosening the screws will slacken the membrane and lower the pitch making it sound closer to the booming of a jackhammer.

The automation of this tuning process was done by measuring and modeling the drum as a closed system, using assorted electrical and computer-based techniques to identify the systems current state while ignoring extraneous interference, collecting user input to choose a desired state and implanting an electrically driven mechanical system that can change the state.

This process is not just relevant to music but may also be applicable to many other real-world phenomena. Things like the wheels turning on a car, the pendulum of a clock, the tuning of a radio, and quantum mechanical systems all use a similar model of mathematics.

POSTER: EES - 15**Sensitive Leak Detecting Water Meter****Christian Tsafack, Danny Xia, Phillip Grunkin**Faculty Mentor: Professor Alfred Levine
Department of Engineering and Environmental Science

Although the planet is made of 70% water, only 3% of that water is freshwater. The rest of the planet’s water is currently unavailable for use because the majority of it is in the form of salty seawater and the rest is tucked away in frozen glaciers. The water available today is widely mishandled, with an estimated one-third lost due to leakage. It is important to not mishandle the water we currently have access to. This experiment presents a proposal for improvements to our current water meter system. A highly sensitive water meter that detects the flow of water with an accuracy of around 99%. The high sensitivity combined with the intelligent microcontroller of this meter allows for the capability of detecting a leak in a water system. The water sensor implemented with this meter generates an electrical pulse each time water flows through it. The microcontroller counts each of those pulses to accurately determine the flow of water. To determine the possibility of a leak, the microcontroller saves the amount of water used every day to obtain a daily and weekly average water usage. That average is used to detect abnormalities in the use of water. The second condition the meter implements to detect a water leak is that it monitors the flow of water daily. If the water doesn’t stop flowing, this could indicate a possible leak. Because of its high sensitivity, the meter can detect small leaks, like a leaky faucet. Finally, the developed system is validated in a simulated implementation that shows that it is able to detect leaks with 75% accuracy. This number is said to increase overtime after the water management system collects more data about the user's water use. The accuracy of electronic systems like the one used in this experiment won’t worsen over time, and unless physically tampered with, compared to systems that are mostly used today.

MANAGEMENT

Poster Presentations

POSTER: MGT-01

NYPD

Angye Galan

Faculty Mentor: Professor Isabel Rechberg
Department of Management

The objective of this work is to dissect the NYPD and educate people about the current reality of the institution. It is argued that the department is in a dire need of police officers, due to members of service's attrition. This research will focus on understanding the NYPD as an organization by drawing on the theoretical constructs of Organizational Behavior such as Gareth Morgan's "Images of Organizations." Factors studied include workplace quality, police officers' ability to effectively do their job, transitions and changes, high demands and understaffing, work stress, retention and work/life balance. As a cadet at the NYPD, and working with different ranks from police officers to inspectors, I am able to observe members of service's daily working environment and analyze the organization's functions. I will study how the NYPD has developed over the years, its current struggles and what will be necessary for its sustainable survival to keep New York City safe.

POSTER: MGT-02

Volunteer Management

Michael Ivany

Faculty Mentor: Professor Isabel Rechberg
Department of Management

The capstone applies the basics of management and accounting to student organizations, specifically one at the College of Staten Island. The research paper's primary topic is how extracurriculars impact student lives on and off campus as well as in and out of the classroom. It feels as if now is a better time than any to put effort into researching the importance of extracurricular activities. With CSI in a structural deficit and enrollment having a hefty decrease followed by a hopeful flatline, students may want to seek ways to apply what they learned in the classroom. Several student organizations from the College are described (a briefing of their make up and structure), followed by an application of the basics of management and accounting to each organization, and concludes with the results of a simple survey from CSI student leadership population quantifying their feelings on how their leadership capacities have helped them grow as an individual. Content from textbooks and peer-reviewed articles are used to support claims and concepts. This paper shows our community that there is opportunity for everyone at CSI and that starting a club or organization is as simple as taking up a pen and figuring out the name and purpose of your organization.

MARKETING

POSTER: MKT-01

Holiday Marketing in a Pandemic: How COVID-19 is Changing the Holiday Shopping Season

Gabriella L Quinones

Faculty Mentor: Professor Nancy Shuojia Guo
Department of Marketing

The unprecedented nature of the COVID-19 pandemic has caused many profound changes, some of which have important implications for marketers who are seeking to build lasting relationships with customers. The pandemic has undeniably shifted consumer behavior, thus causing emerging marketing opportunities for holiday seasons. With a large population of individuals working remotely, shopping online, and spending increased leisure time online than before, marketers will need to think carefully regarding how to engage consumers in the “new normal”. Thus, this research presentation aims to investigate the most effective digital marketing strategies and tactics for holiday promotions after the COVID-19 pandemic.

Through content analysis and the implementation of visual aids such as diagrams, photographs, and data, this presentation will examine the history of the holiday shopping market as well as holiday advertising prior to the pandemic. Furthermore, the research will highlight the evolution of various marketing trends and propose effective practices for holiday marketing in a pandemic. Fundamentally, this presentation intends to aid marketers in identifying areas where they can improve by presenting recommendations and strategies for future holiday marketing efforts.

In our everchanging, competitive marketplace, it is vital that marketers and retailers alike can ensure brand awareness and customer retention by adapting to societal changes. As an individual with a profound interest in digital marketing, who has also worked in a retail setting amidst the pandemic, I am highly motivated to present my findings on this relevant topic in an aesthetically pleasing, insightful and informative capacity.

POSTER: MKT-02

The Effects on Consumer Behavior Caused by Marketing within the Fast-food Industry

Alessandria Modawar

Faculty Mentor: Professor Dan Zhang
Department of Marketing

In the current environment we live in, we are surrounded by the fast-food industry. The convenience of a quick meal at an affordable price, that appeals to everyone regardless of age, sex, and race, is something most Americans have grown up with. The fast-food industry had to be resourceful in their tactics to become the massive industry they are today; and leading the industry is McDonald's. Examining consumer behavior as well as the marketing trends created by McDonald's throughout the early 1900's to present day helps us see how the industry has followed in McDonald's foot steps to make a huge impact on the lives of Americans throughout the nation. This research aims to understand the approach that the industry has taken to appeal to consumers and to keep them coming back over time, an approach that would build lifelong relationships with consumers that would be passed down from generation to generation while creating a household name.

POSTER: MKT-03**A Data-Driven Impact Analysis of Personal Consumption Expenditures by Industry in New York and the United States during COVID-19: Implications on Consumer Spending and Influencing Factors****Sabella Vaserman**Faculty Mentor: Professor Soon Ae Chun
Department of Marketing

The COVID-19 Pandemic has caused widespread disruptions to the global economy, specifically affecting consumer spending. The aim of this research project is to examine the impact of the Pandemic on Personal Consumption Expenditures (PCE) by industry in New York and the United States, whilst understanding the factors of consumption. Utilizing data from the Bureau of Economic Analysis from 1997 to 2021, time-series visualizations and other visual analytics were used to study the changes in consumer purchase behavior over time by industry. These analyses allow for the close examination of the spending category trends within each industry classification in New York and across the United States. The results indicate the Pandemic had significant and varied impact on PCE across industries. Industries related to online retail, groceries, and home improvement experienced significant growth, while industries related to travel and entertainment suffered sharp and substantial declines. However, clothing/footwear, food service, and transportation industries all experienced a larger decline in New York than in the United States.

Based on these industry-specific fluctuations in consumer spending, we further investigate and develop a model for factors influencing consumer behavior and decision-making. While these influences typically include psychological, sociological, and economic factors, our study claims that governmental health-related policies/interventions and contextual factors, such as geographic and temporal variability, are also important considerations in studying behavioral changes in buyers. This study contributes not only as a data-driven analysis tool to navigate the ongoing, nuanced, and differential impacts of the pandemic on Personal Consumption Expenditures, but also expands the theory of consumer spending behaviors.

POSTER: MKT-04**Repositioning The CW to Reestablish it as *THE* Teen Network****Student Scholar: Kelli Wallace**Faculty Mentor: Rosane K. Gertner
Department of Marketing

Brand positioning is a delicate art form. Despite a company's best efforts, they have limited control over how consumers perceive their business. Therefore, it's vital for brands to have and monitor how consumers perceive their business, through various techniques, such as perceptual maps. And when a company begins to discern a notable difference between how they are trying to position itself in the minds of consumers versus how they are being perceived in the minds of consumers, it is in that company's best interest to reposition itself and forge a new identity or reestablish its lost identity. The CW Network of cult classic fame, thanks to shows like *One Tree Hill*, *Gossip Girl*, and *Supernatural*, is in crucial need of rebranding. Despite the network's effort to cater its content toward teens, its audience is much older, with most viewers in their 50s. This paper aims to explore how the former titan of teen dramas could once again secure its audience with the help of digital marketing campaigns.

MATHEMATICS

POSTER: MTH - 01

Spatial Dynamics of Argentine Tango

Janet Akselrud

Faculty Mentor: Professor Joseph Maher
Department of Mathematics

From ancient Egypt to modern-day, the fields of mathematics and dance have intersected and informed one another. Topics such as patterns, symmetry, balance, proportion, and momentum have been studied to reveal the underlying structure of the dance. However, Argentine tango has largely been left out of the conversation. This paper aims to change that: to study the spatial dynamics of Argentine tango using a mathematical model to analyze the way dancers move through space and the way they interact with one another. The specific model being tested is one that was proposed in 2010 by Professor Carla Farsi at the University of Colorado. Using two spatial variables, angle of distance around the dance floor, and horizontal angle of twist of the leader's chest, we can map a couple's path in improvised social tango onto a doughnut shape, known as a torus in geometric topology.

MEDIA CULTURE

POSTER: MC - 01

From Analog to Digital: How Editing Changed the Film Industry

John Wilson

Faculty Mentor: Professor Cynthia Chris
Department of Media Culture

Editing is one of the most essential parts of bringing movies to life. However, what most people don't know is that there have actually been two different kinds of editing used during different periods of cinema's existence. Linear editing was the dominant form of editing in cinema through to the 1990s, since most feature films at the time were shot on 35-millimeter film and hand-spliced over the course of numerous hours. In the 1990s, however, the film industry began to standardize new digital systems that allowed editors to work in a non-linear format. In this project, I draw upon the recollections of some of the industry's leading editors, such as Walter Murch, and offer as a case study the Star Wars franchise. The original trilogy was edited linearly, while the prequel trilogy was edited non-linearly. This shift in technology changed how film editing was done: did it also change narrative and visual aspects of filmmaking? I explore this question in my analysis of these films.

POSTER: MC - 02

A Misinformation Pandemic?: What Were the Effects of Audience Fragmentation on the Validity of Cable News Reporting at Critical Points in the COVID-19 Pandemic?

Louis Adorno

Faculty Mentor: Professor Cindy Wong
Department of Media Culture

This project attempts to understand the effects of audience fragmentation between social media and mainstream news platforms regarding the COVID-19 Pandemic. Theories and speculative claims in contradiction to official CDC and WHO guidance emerged on social media and online communities from the onset of the coronavirus outbreak in the United States. Much of the social media posts were widely circulated within fringe online communities. Following shifts in official guidelines, treatment developments, and government restrictions, some of the most prominent theories within these digital publics became discursive material on mainstream cable news outlets. Focusing on the five most circulated keywords of proven COVID-19 misinformation on social media and online messaging communities, this study tracks the prevalence and context of the recirculation of these same keywords on cable news broadcasts. Beginning with a literature review on the cultural flow of misinformation from online to legacy media, this project analyzes three major points during the pandemic: the onset of COVID-19 Lockdowns in the U.S., Emergency Use Authorization of the Pfizer vaccine, and the implementation of the Coronavirus vaccine mandate for New York City employees. We also include qualitative findings from interviews with partisan media consumers to provide contextualized perspectives on fragmented media engagement and the logic behind source credibility assessments.

POSTER: MC - 03

Implications of Social Media on Public Relations and Marketing

Lauren Wilson

Faculty Mentor: Professor Bilge Yesil
Department of Media Culture

In this paper, I examine how developments in social media have impacted public relations and marketing industries, professionals and practices. Although social media has its origins in entertainment and connecting people, it has also become an important tool in the afore-mentioned fields, and as such, is worthy of scholarly analysis. For the purposes of this paper, I focus on a number of marketing and public relations campaigns to discuss how companies have used social media and which specific strategies they implemented. Through an examination of case studies that I located in trade publications such as Advertising Age, I further evaluate brand communities and influencers. The case studies from the past decade demonstrate that brand communities comprise a significant component of social media practices in marketing and public relations. Brand communities consist of people who share similar interests in a particular brand or product. These communities are found to be loyal

customers that have a positive relationship with the brand and are more perceptive to the social media strategies that are used for promotional purposes. Another strategy that marketers and PR professionals often resort to is the use of influencers. An influencer is similar to a spokesperson, but many influencers gain popularity because of their large social media followings, rather than gaining fame through a profession, such as athletes, actors or musicians. Influencers have been found to have an impact on the purchasing habits of those that follow them, making them a useful partner for a company trying to promote their product to a specific audience. Last but not least, I examine the shift from traditional marketing and public relations practices to the more digitally focused ones, and discuss the implications on roles and business routines of professionals in these fields.

NURSING

POSTER: NRS - 01

Interventions to Help Nurses Cope with Patient Death Due to the COVID Pandemic

Michael Cupelli

Faculty Mentors: Professors Karen Arca-Contreras and Danna Curcio
Department of Nursing

There has been a significant amount of literature addressing the impact of the nursing profession on nurses' mental well-being (Keykaleh et al., 2018). The severe amount of stress within the profession of nursing has the potential to create dangerous outcomes such as musculoskeletal disorders, psychological issues, and nursing performance concerns (Tamrin et al., 2022), all of which may affect nurses' cognition and ability to cope. The COVID-19 pandemic magnified stressful events for the nursing profession due to the increase in patient needs, acuity level, and the number of patient deaths that occurred. Therefore, it is crucial for nurses to employ strategies to enhance well-being. Searches within the databases of CINAHL and PubMed revealed evidence-based literature addressing the effects of patient deaths during the COVID-19 pandemic on nurses and relevant interventions needed to help nurses restore mental well-being. Ways in which nurses can help themselves such as "mindfulness" and "spiritual coping", are imperative to understand and consider. A concise discussion provides a scope of nursing hardship in relation to depleting coping mechanisms, offering implications for nursing practice utilizing ways of stress-coping adaptation.

POSTER: NRS - 02

Nursing Care of a Woman Experiencing Pre-Eclampsia: A Case Study

Michelle Avila

Faculty Mentor: Professor Arlene Farren
Department of Nursing

Women experience complications in pregnancy that can place their lives in danger, increase risk for maternal mortality, and diminish their quality of life. Preeclampsia is one of the factors identified as a major cause of maternal mortality and is defined by experts as a pregnancy disorder that is associated with new-onset high blood pressure. Preeclampsia risk is increased by presence of health problems as well as nonmodifiable factors such as race/ethnicity, pregnancy history, and family history. As a nurse working on an interdisciplinary team, it is essential to provide care reflecting the best practices that keep women safe, contribute to the best pregnancy outcomes, and enhance their quality of life. Ferrans' Quality of Life Conceptual Model and attention to the social determinants of health provide perspectives for delivering evidence-based care to pregnant women. These perspectives include factors such as health and functioning, psychosocial/spiritual, socio-economic, and family domains. The purpose of this project is to develop an evidence-based case study to demonstrate current best practices in the nursing care of a woman of color experiencing preeclampsia. The methods include a review of the literature and presentation of a simulated case illustrating best practices, evidence-based guidelines, and standards related to the prenatal care of women at risk for or developing preeclampsia. The case will depict an African American woman in her mid to late pregnancy who has developed signs of preeclampsia. Patient assessment, diagnosis, interventions, and outcomes will be discussed. The paper will close with a summary, conclusions, and recommendations.

POSTER: NRS - 03

Integrative Literature Review of the Cognitive Performance of Elderly Population Aged 65 Years and Older After Coronavirus Disease (COVID-19 Infection)

Cassandra I Paone

Faculty Mentor: Professor An-Yun Yeh
Department of Nursing

The COVID-19 pandemic wreaked havoc and continues to cause problems in all populations, especially older adults. Due to their aging immune system, older adults are more susceptible to COVID-19 infections. Since many think of COVID-19 and its harmful effects as long-term respiratory and cardiovascular damage, the change in cognitive function may be ignored. Due to little being known about the COVID-19 effects on cognitive performance in older adults, a literature review was conducted to better understand this relationship.

An integrative literature review was conducted to investigate the current understanding about the relationship

between COVID-19 infection and cognitive performance in older adults. An electronic search was conducted in the database of CINAHL and Medline for articles published at any point in time as research on this topic does not span before the initial beginning of the COVID-19 pandemic. Keywords included cognitive performance, cognitive dysfunction, cognitive impairment, Covid-19, long Covid, chronic Covid-19, post Covid, 65 years and older, older, elderly, and aged. Inclusion criteria for the studies selected consist of peer reviewed, databased, and research articles, as well as a population of 65 years or older and in the English language.

Results of the literature searched produced 10 database publications. Seven of these publications showed that older adults after COVID-19 infection demonstrated cognitive impairments/alterations/deterioration. The older adults recovered from COVID-19 with certain risk factors have higher risk for cognitive impairment. These factors include impaired memory and elevated anxiety/depression as well as discussing risk factors like the female sex, lower education, acute Coronavirus symptoms of sleep disturbances and headache, and a pre-infection history of migraines.

Overall, this topic needs to be studied in greater detail as research to understand this topic is recent, but unrepeated. More studies need to be conducted to further understand the impact of COVID-19 infection in the cognitive function of older adults, which could be the foundation for developing interventions to maintain or improve cognitive function in older adults after COVID-19 infection.

PHYSICAL THERAPY

POSTER: PHT-01

Investigating the Effects of Multipath Direct Current Stimulation on Axonal Regrowth in Mice with Spinal Cord Injury

Areej Hassan

Faculty Mentor: Professor Zaghoul Ahmed

Department of Physical Therapy

According to the National Spinal Cord Injury Statistical Center (NSCISC), there are currently more than 290,000 people living with spinal cord injury. Axonal regeneration is the process by which damaged or severed axons, which are the long, slender projections of nerve cells that transmit electrical impulses to other cells, regrow and reestablish connections with their original targets after an injury. When the spinal cord is injured, the axons that carry signals between the brain and the body can be damaged or severed, leading to a loss of motor and sensory function below the level of injury. Since axonal regeneration is often limited and incomplete with SCI, this results in significant impairments in motor and sensory functions or even complete loss of function. We aim to prove that the specific placement of the cathodal pole over the injury site, with the anodal poles positioned rostral and caudal, facilitated axonal sprouting from both directions toward the injury site. The study involved nine CD-1 mice that had sustained spinal cord injuries, four of which were stimulated for 1 hour and 20 minutes, three times per week, for three weeks and the remaining five were not in our control group. Our research employs a stimulation apparatus to investigate the effects of multipath direct current stimulation on the regrowth of dorsal column axons at the site of injury in mice with spinal cord injuries. To visualize the regenerated sensory axons through the intracranial injection of administered Adeno-Associated virus tagged with green fluorescent protein (AAV-GFP), we used the anterograde neuronal tracing technique. The Basso Mouse Scale (1995) was also used to assess the locomotor recovery in the mice with spinal cord injuries.

**POLITICAL SCIENCE
AND GLOBAL AFFAIRS**

POSTER: PSGA - 01

An Analysis of the Political Landscape in MENA: How Political Islam has changed after the Arab Uprisings

Halah M Shawaya

Faculty Mentor: Professor Halil Ege Ozen
Department of Political Science and Global Affairs

The Middle East and North Africa (MENA) is a region where Islam is perceived as playing a large and vital role in the political and social spheres. This study examines the effect of the events leading up to and after the Arab Spring in different MENA countries on political Islam's political successes and failures. So far, most research on this topic has concentrated on groups like the Muslim Brotherhood. However, this research will investigate the climate of individual countries to help shed light on the relationship between the political institutions and opportunity structures and political Islam in the MENA region. This work aims to develop a comprehensive understanding of how the political landscape in MENA has uniquely affected the role of political Islam succeeding the Arab Spring.

POSTER: PSGA - 02

Democratization in Albania

Xhesika Istrefi

Faculty Mentor: Professor Halil Ege Ozen
Department of Political Science and Global Affairs

A complex interplay of internal and foreign causes has shaped Albania's long and arduous journey toward democracy. This study offers an in-depth investigation of Albania's democratic transition, concentrating on the significant political, economic, and social alterations that occurred after the collapse of communism in 1991. The study additionally investigates the difficulties Albania has had in establishing democratic norms and institutions, including lawlessness, corruption, and violations of human rights. It argues that previous regimes, fascism, and communism, caused a path-dependency in Albanian institutions and political culture, making the road to democratic consolidation bumpy and spiral. The research intends to make suggestions for future democratization initiatives in Albania, including the requirement for more efficient international assistance, better political institutions, and increased accountability and transparency.

POSTER: PSGA - 03

How the Arab Uprisings Affected Women's Rights

Katherine Yenna

Faculty Mentor: Professor Halil Ege Ozen
Department of Political Science and Global Affairs

The Arab uprisings of 2011, often referred to as the Arab Spring, make up one of the most significant moments in the history of the Middle East/North Africa (MENA) region. In general, participants of all these uprisings were calling for the democratic reform of their countries. Previous democratization attempts have missed the mark for various reasons. These protests were primarily a call for further liberalization and, in some cases, a complete shift in how their governments were run. Undeniably, the Arab Spring and its subsequent events completely reshaped some Middle Eastern countries as they exist today. Women have been playing a vital role in these protests and transformations. This research project examines how the Arab Spring affected gender politics in the region, specifically the role of women in society. Through qualitative methods and utilizing past research, this research project will show that the Arab uprisings did lead to advancements in women's rights in some countries but did not necessarily lead to sweeping reforms. Despite the time constraint of this research project, it will provide a comprehensive analysis of the state of women's rights as a result of the Arab uprisings in countries that experienced democratic advancements as well as those that did not.

PSYCHOLOGY

POSTER: PSY-01

Function of Nap Time on Goal Directed Reaching in Pre-Crawlers

Lizbet Rodriguez, James Gardiner

Faculty Mentor: Professor Sarah Berger
Department of Psychology

Children achieve key motor milestones, such as sitting and crawling, during their first year (Adolph & Berger, 2011). During this period, infants also experience dramatic changes in their sleep. Sleeping facilitates infants' learning, such as solving a novel motor task (Berger & Scher, 2017) and word learning (Horvath et al., 2015). However, little is known about whether napping can enhance the motor and cognitive skills necessary for pre-crawling infants to complete a motor task. This study aims to understand the function of naps in consolidating new information when performing a taxing task. Nine typically developing infants between 6 and 8 months old received a modified version of Piaget's A - not - B task (1954) twice in one day, with a four-hour delay between sessions. Infants sat on a foam surface in front of a reaching board while wearing a head-mounted eye tracker that captured the infant's gaze and looking patterns. The task required infants to accurately reach between two locations where a toy could be displayed. The toy was hidden at location A five times but at location B the sixth time. If the infant reached to A when the toy was at B, they showed evidence of perseveration, an inability to inhibit. Both eye-tracking and whole-body video footage were recorded during each session and coded using video coding software for infants' movements and looking patterns. Three infants did not nap between sessions, three took a 75-minute nap, and three took a 90-minute nap. This poster focuses on the changes in goal-directed reaching between sessions. Mastering postural control imposes a cognitive load that can elicit trade-offs between attention and action (Berger et al., 2017; Berger et al., 2018). Since the A - not - B task demands both cognitive and motor skills not yet mastered in these infants, we expect that infants who napped more will have a lower extent of perseveration during the second session. The longer the nap, the more time infants have to consolidate balance control strategies that help them strengthen their goal-directed reaching. Data collection and preliminary analyses are ongoing. We plan to discuss reaching time and patterns between sessions relative to infant nap times.

POSTER: PSY-02

The Impact of Motor Milestone Acquisition on Infants' Sleep-Dependent Movements

Sarah Abdel Fatah, Annemarie DiPaolo, Dixy Melendez

Faculty Mentor: Professor Sarah Berger
Department of Psychology

In the first year of life, infants achieve many motor milestones, like crawling or walking. Sleep disruptions increase as children master their motor milestones (Atun-Einy & Scher, 2015). For example, crawling infants had more wake episodes than infants who could not yet crawl (Scher, 2005). In addition, sleep efficiency was lowest in the weeks surrounding the onset of a new skill and crawling acquisition led to an increase in movement while asleep (DeMasi, 2023). Experience in each skill can change infants' movement during sleep, resulting in disrupted sleeping patterns (DeMasi et al., 2022). While these studies (DeMasi et al., 2022 & DeMasi, 2023) focused on only one day before or after the acquisition of a milestone, there have not been any studies looking at a broader time frame to discover whether other nights of sleep were also affected. During the night of a milestone acquisition, we hypothesized that infants' wake episodes will be lower compared to before and after the milestone acquisition due to the infant not experiencing substantive sleep. The broader study included 14 infants (seven female and seven male) who were recorded throughout milestone development, however, in this case study we only report the data from one infant. Parents kept a milestone diary, a checklist to document specific milestones, when they occurred, and the definitions of each milestone (Berger & Moore 2021). A Nanit crib monitor, a camera that monitors and analyzes infants' sleep, provided the videos of nights analyzed. Researchers coded the Nanit video for wake episodes and type of movements during the three nights before he crawled, the night of crawling onset, and three days after. The infant was successful in crawling, which we defined as using hands and knees to propel forward with belly up on the floor, more than 10 feet without stopping. Currently, this participant has one night before, the night of, and the night after coded. However, we aim to look at a broader window of time to see if movement changed from a previous baseline.

POSTER: PSY-03**Infants' Visual Attention During Problem Solving Tasks: A Case Study****Irene Kalogiannis, Shakira Baksh**Faculty Mentor: Professor Sarah Berger
Department of Psychology

Infants make about 50,000 eye movements per day (Bronson, 1994; Johnson, Amso, & Slemmer, 2003). Visual tracking is useful in understanding the behavior of visual interactions between the infant and the environment around them. This study aims to analyze the association between infant eye movements and action during cognitive tasks. In this case study of a new walker solving a novel task, the infant was placed in front of a nylon tunnel wearing a head-mounted eye tracker. Her caretaker is at the end of the tunnel, providing support with toys and praise. During the study, experimenters promoted movement by rolling toy balls inside the tunnel towards the caretaker. The eye tracker is used to help researchers determine image processing based on the objects surrounding the infants' field of view. The eye tracker documents where the baby is looking and how long they look, when they are deciding whether they are entering the tunnel. Experimenters watch what the infant is paying attention to in anticipation of the infant positioning themselves from walking to crawling through the tunnel. As we threw the toy ball to encourage her to crawl through the nylon tunnel, she was pulling the tunnel up instead, suggesting her ability to switch postural positions impacted her completion of the tunnel task. To successfully complete the task, the infant would need to focus their attention on repositioning themselves from walking back to crawling which is often difficult based on infants' walking experience. Using the data received from the eye tracker, we will examine where attention is being directed when the child is fixating on the obstacle presented. Babies learn to solve problems by examining new objects and people they meet. It is through interactions and experiences that babies begin to make sense of the world.

POSTER: PSY-04**Observing Differences in Traditional Early Intervention and Start Play****Isra Tahir**Faculty Mentor: Professor Sarah Berger
Department of Psychology

Early intervention (EI) is a support and educational system available to babies and young children with developmental delays and disabilities that aims to improve child and family development. EI can have a positive impact on children with delayed development because motor skills typically developed during the first few years of life subsequently serve as a framework for their interactions with other people and objects. There are many different approaches to EI therapy however, a new form called Sitting Together and Reaching to Play (START-Play) was created in 2015 by a group of professional physical therapists (PT) who recognize the importance of cognitive, social, and motor development. In Start-Play, PTs collaborate with families to provide rigorous, personalized daily activities that help infants improve their reaching and sitting abilities through gradual increases in difficulty and assistance. The aim of the study was to design and test whether there were differences between the two types of interventions (traditional EI therapy and Start-Play) regarding opportunities for infants to explore toys and their postures. Archival Start-Play data set was obtained and included six infants who were learning how to sit during their physical therapy sessions; three of which participated in traditional physical therapy and three that participated in Start-Play therapy. A code was developed to document the number and duration of opportunities to explore (whether a toy is in reaching distance and seen by the infant), duration of exploration (how long an infant played with a toy), and category of posture (whether the infant was sitting or lying down) and how their posture was achieved (either by themselves, or with assistance from their guardian or PT). We would expect that Start-Play may show fewer posture changes because the infants will be more focused on playing with their toy but, we would also expect more opportunities for toy exploration because Start-Play relies on infants taking initiative rather than having things provided to them. The importance of this study is to produce preliminary findings evaluating the efficacy of Start-Play, which seems to be an instrument to maximize early intervention outcomes regarding cognitive and motor development.

POSTER: PSY-05

Do College Students Utilize Lateral Reading when Evaluating Online Information?

Maryam Syed

Faculty Mentors: Professor Patricia J Brooks and Arshia Lodhi
Department of Psychology

Internet users face a barrage of information and may struggle to distinguish trustworthy content from misinformation. Since 2018, CSI has participated in the Digital Polarization Initiative (DPI), which aims to teach college students “lateral reading” (LR) strategies used by expert fact-checkers to evaluate online content. LR requires users to leave the original website to investigate the source, find better coverage, and trace information back to its original context. Using course outcomes data from COR100 classes, we examined whether students (N= 297 in Fall 2021 and N= 244 in Fall 2022) were aware of LR strategies at the start of the semester, prior to completing the DPI curriculum. Students completed the assessments in Qualtrics as part of an online assignment. Students often selected LR as the “best strategy” for determining trustworthiness on multiple-choice problems, though they rarely described using LR on open-response problems where they were given links to online content and instructed to evaluate it. On the multiple-choice problems, most students (69% in Fall 2021, 66% in Fall 2022) selected “reverse search” as the best way to verify an image, and most (56% in Fall 2021, 58% in Fall 2022) selected “searching keywords” as the best way to verify a claim. However, only a minority (28% in Fall 2021, 22% in Fall 2022) endorsed “using Wikipedia” as the best way to find out more about an information source. Despite their selection of LR strategies on multiple-choice problems, students described using a LR strategy on only 17% of open-response problems in Fall 2021 and 16% of the problems in Fall 2022. In Fall 2022, we added a textbox for each open-response problem with instructions for students to list any URLs they used to evaluate the trustworthiness of the content. Students listed URLs different from the original source, indicating LR, on 25% of the problems. On most problems (64%), students wrote “none” while students listed the original source on 11% of problems, suggesting they had used a “vertical reading” strategy to scrutinize the content. Results indicate a dissociation between students’ awareness of LR strategies and their actual use of LR. College instructors may need to reinforce use of LR strategies to develop students’ fact-checking habits.

POSTER: PSY-06

The Effects of COVID-19 on Education

Nicholas A Marino

Faculty Mentor: Professor Megan Caldwell
Department of Psychology

In 2020, the United States of America entered a pandemic. The instant state of quarantine, combined with the booming of the internet created a new wave of social interactions. One of the most important aspects of human life that had to adapt to the new circumstances was education. Teachers, students, parents, and faculty had to face what the pandemic brought them. Despite this, there were many negative long-term effects that COVID-19 left on Education, including test grades, attendance, reading levels, performance reviews, and even mental health. In fact, students' reading levels fell behind over 3 months. In addition, children of lower-socioeconomic status who wanted to keep up with students who can afford to have PCs and laptops at home also had the burden of obtaining proper equipment or be at risk of falling behind. COVID-19 created an unpredictable circumstance for all parents, students, and school staff.

POSTER: PSY-07

African Burial Grounds: Using QR Codes and Oral Histories to Acknowledge Those Who are Forgotten

Yamilet Vasquez

Faculty Mentor: Professor Katie Cumiskey
Department of Psychology

In the 1950s, on Staten Island, a sacred African burial ground was taken over by the city since they owed \$11,000 in taxes.

On the land, located on Forest Avenue and Livermore Avenue, profitable stores and businesses have now covered the African Burial Grounds with cement and foot traffic that disregards the souls buried there.

My involvement in this project started through my participation in an intentional learning community at CSI St. George focused on building a new interdisciplinary field called Public Interest Technology. Working with community activists, I started collecting stories and identifying key locations of burial grounds around Staten Island and a similar location in Flatbush, Brooklyn. This project features the use of QR codes to generate a virtual memorial at the site in order to create a site of public history. A history to be shared with Staten Island, some of whom are descendants of slaves. The goals of this project are achieved through a focus on Benjamin Perine, the last person born into slavery in Staten Island and who is buried at the site.

I collected stories from his Great Grandchildren who spoke about how they felt finding out their grandfather was buried underneath a parking lot. Their support of my project validates our goal to recognize the people who were once buried there and share their stories with the community.

POSTER: PSY-08

Food Justice and Fridges: Cultivating Youth Empowerment Through Community Sharing and Culinary Skills

Andrea M Guifarro

Faculty Mentor: Professor Katie Cumiskey
Department of Psychology

This poster will detail my collaboration with a mutual aid project on Staten Island called: “The Forest Avenue ComeUnity Fridge”. The Forest Avenue ComeUnity Fridge was founded by Alexandra Shoneyin in 2020 at the height of the COVID-19 pandemic, on the corner of Forest Avenue and Amity Place on Staten Island. On this corner stands a working refrigerator and standing shelves that are stocked and maintained by the local community. It is considered a mutual aid project because its function centers on the community sharing resources to provide for collective needs. Its existence is also meant to educate the local community on issues related to food justice and environmental racism.

My involvement in this project started through my participation in an intentional learning community at CSI St. George focused on building a new interdisciplinary field called Public Interest Technology. Over the last year, I have participated in supporting the goals of this project through volunteering, advocating for the group’s inclusion in a national event, and now interning as a student guide to help plan community education activities focused on food justice. This project is place-based in that there is a target area that the program hopes to work with and empower on Staten Island called: Mariners Harbor. I am working with founders of the community fridge and critical community stakeholders to build a community education program aimed at the youth of Mariners Harbor. We want students to design projects to essentially create a vision for bringing awareness to issues in Mariners Harbors - using digital storytelling. Other activities support educating young people who live in what is considered a “food desert” on food systems and production and encouraging the development of culinary skills. This internship has helped me engage with the students and develop skills related to youth empowerment as we develop strategies together to confront historic governmental neglect and offer access to community-based interventions aimed at growing a sustainable and healthy future.

POSTER: PSY-09

Mitigate, Enhance, Preserve and Educate - The Impact of Development on the Graniteville Wetlands

GraceAnna Akparanta, Elmar Abu

Faculty Mentor: Professor Katie Cumiskey
Department of Psychology

Communities are unknowingly shielded from coastal flooding by wetlands. These unique areas provide a vital role in managing water, acting as a natural sponge that helps to prevent flooding and property damage during storms. The anticipated global loss of wetlands is close to 50%, and the rising demand for space for community development will prioritize the building of convenience stores instead of providing protection from extreme weather. This project started as part of an intentional learning community at CSI St. George focused on building a new interdisciplinary field called Public Interest Technology. Through engagement with tech tools, we are raising public awareness of the threats to Staten Island’s North Shore Graniteville Wetlands from continual shrinkage based on the approved project development of a major wholesale warehouse store.

Poster Presentations

Using Google Earth Pro, we examined a historical map of Staten Island to compare with recent satellite images to understand the current threat that recent development has posed to the natural wetlands resulting in an almost 94.5% decrease over the past hundred years of civilian settlement on the North Shore of Staten Island. The historical Staten Island map had 1,140.67 acres of wetlands total compared to Graniteville's size of 62.68 acres. Further construction of the proposed development project on the Graniteville wetland would further reduce it to 57.58 acres.

It is crucial that the community members have an understanding of the consequences of the loss of wetlands by providing them with a visual mapping tool using Google Earth Pro that shows an updated re-evaluation of their flooding zones with the newly constructed stores. Arming the community with the ability to track flooding caused by the reduction of wetlands and creating an awareness campaign related to preservation will provide Staten Islanders with the tools to not only protect their homes and neighborhood but to combat environmental racism and hold the developers collectively responsible for mitigating damage to the Graniteville wetlands.

POSTER: PSY-10

The Positive Effects of Exercise on Mental Health

Raphael Pollante

Faculty Mentor: Professor Valkiria Duran-Narucki
Department of Psychology

Many studies (e.g. Morgan et al., 2012; McGale et al., 2011; Goldfield et al., 2015) show that people who engage in daily physical activity, like resistance training or aerobic exercise, can improve their mental health. In this literature review, I used APA's database PsycInfo and searched for the terms "resistance training", "aerobic exercise" and "mental health". My goal was to find out whether physical exercise can positively affect mental health. After reading the selected articles, it can be concluded that exercise can positively affect people's mental health, specifically, in terms of improving the symptoms of body dysmorphia, stress, depression and anxiety, as well as increasing self-esteem.

POSTER: PSY-11

Playing Video Games to Cope and Recover from Stress: A Replication

Andrea Perrone

Faculty Mentor: Professor Valkiria Duran-Narucki
Department of Psychology

This is a replication of a study by Reinecke (2009) on the use of video games for recovery from stress. Data from 505 students at the College of Staten Island were collected using an online survey. The survey asked about video-game-related habits, daily stressors, social support, coping, and recovery experience. The model to be tested investigates the use of video gaming to recover from stress. Findings will indicate whether using video games aids college students to cope with stress.

POSTER: PSY-12

The Relationships Between Reported Engagement and Games Created by Autistic Youths in a Game Design Workshop

Alessandra G Hayes

Faculty Mentor: Professor Kristen Gillespie-Lynch
Department of Psychology

The present study focused on if and how students' self-reported engagement and teacher ratings of students' engagement is associated with video games created in Flowlab by autistic youths in a 2-week online game design workshop. Students and teachers were asked to report students' interest in specific workshop activities using a five point picture scale (ranging from "Bored" to "Interested"). Games were qualitatively coded in terms of types (the presence of aspects in students' games) and tokens (the amount of aspects), which were collected from the frontend (the elements of the games that the player can view) and backend (the blocks of code that define what the game does). Researchers assessed if and how student-reported engagement and/or teachers' ratings of student engagement correlated with the diversity of frontend/backend elements in games produced. We hypothesized that

student-reported engagement would be positively correlated with the diversity and amount of game elements, teachers' ratings of student engagement would be positively correlated with frontend elements (both in terms of types and tokens) in students' games, and the strength of the correlations between both frontend and backend elements in relation to student reports of engagement would be higher than correlations with teachers' reports of students' engagement. Preliminary results show that frontend-type elements in autistic students' games were positively correlated with students' engagement during game design activities that encouraged students to take the perspective of the player. Currently, we are in the process of coding the backend-tokens (the amount of certain blocks of code), which is the last stage of coding for this study. We hope this study will give insight into the different creative approaches autistic students take when designing games as well as providing insights into the relative validity of educators' and students' engagement ratings.

POSTER: PSY - 13

Assessment of Cytosolic Calcium Binding Proteins after Traumatic Brain Injury

Rayhan Yahya

Faculty Mentor: Professor Jeffrey Goodman
Department of Psychology

A traumatic brain injury (TBI) can often lead to the development of epilepsy, a family of seizure disorders. Currently there are no therapies available to prevent the development of posttraumatic epilepsy (PTE) and when seizures do develop, they are difficult to control. To further understand the changes in the brain that occur after injury and to identify targets for treatment, animal models are used that approximate the human condition. For this project, tissue will be examined from control and injured rat brains. Once the tissue is sectioned using a vibratome, the individual brain sections will be processed for immunohistochemical staining. Immunohistochemistry is used to identify subpopulations of cells by the proteins they express. For this project, staining will be performed to identify changes in two subpopulations of neurons. To accomplish this, each section will be stained for one of two cytosolic calcium binding proteins: calbindin and parvalbumin. Calbindin is primarily expressed in excitatory neurons and parvalbumin is exclusively expressed in inhibitory neurons. Since seizures result from a disruption of the excitatory-inhibitory balance, an alteration in the distribution and number of these cell populations could underlie the development of PTE.

POSTER: PSY - 14

Effects of Restrictive Cradling on Infant's Emotions, Motor Behavior and Learning

Yulin Yu

Faculty Mentor: Professor Lana Karasik
Department of Psychology

The conjugate reinforcement paradigm is a widely used behavioral tool for studying learning in which infants learn the contingency between kicking and the movement of the mobile. In this task, the infant lies supine with one of their legs tethered to an overhead mobile. When infants learn the association between kicking and mobile activity, kicking increases (Thelen, 1994). In addition to kicking, learning is also assessed through vocalization when the contingency is removed. When there is a change in the visual stimulus, vocal behavior changes (Keren et al., 2021). Infants also vocalize negatively when the contingency is removed due to the violation of expectations. The increase in motor behavior and emotional response when the contingency is removed demonstrates that learning did take place (Fagen & Ohr, 1985). We are interested in the interaction between infants' emotion, motor movement, and cognition. The relation between motor behavior and cognition has been demonstrated; infants can only demonstrate learning if they move their limbs (Sargent et al., 2014). But how does emotion affect motor behavior?

We applied the conjugate reinforcement paradigm to explore vocalization in 3-month-olds (N= 27; 15 girls & 12 boys) from Tajikistan who are reared in the gahvora. The gahvora is a traditional cradle used to bind infants for long periods of time by restricting their posture, limbs, visual input and further limiting opportunities for gross motor movement (Karasik et al., 2018). Infant vocalization was scored for frequency and durations throughout the 15 minutes of the task (baseline, learning trials, and extinction). Infant vocalization was also classified into two types based on the facial expressions. Positive or neutral vocalizations were accompanied by smiles or no change in facial expression while negative vocalization was accompanied with scrunched facial features. We are exploring whether there is an impeding or a facilitating relation. Experience being swaddled and restricted may dampen infants' reactivity (frustration) as demonstrated in previous work (Buss & Goldsmith, 1998).

POSTER: PSY-15

Breastfeeding in Tajikistan: Effects of Gahvora Cradling

Brian Villani

Faculty Mentor: Professor Lana Karasik
Department of Psychology

Breastfeeding is a central part of the Sustainable Development Goals established by the World Health Organization (UNICEF, 2015). It is a foundational step to ensure children's health and wellbeing and serves as a protective factor of babies and mothers (Victora et al., 2016). I observed breastfeeding in Tajikistan where caregivers bind infants in gahvora cradles from birth until 2 years of life (Karasik et al., 2018). Despite gahvora restrictions, mothers respond to babies' needs on demand, often breastfeeding while infants are in the cradle. Tajik infants (N = 69, 37 females and 32 males, 0 to 12 months of age) and mothers were visited at home. I video recorded instances and duration of breastfeeding episodes and noted whether breastfeeding occurred in the gahvora or outside of it, while in mothers' arms. Mothers were interviewed about their infants' daily routines using a time-diary approach. During interviews, mothers reported on activities of the previous day, spontaneously mentioning instances of breastfeeding. From videos, I scored the duration of breastfeeding episodes in and outside of the gahvora. I asked whether gahvora use affects the quality of breastfeeding (duration and frequency) as compared to when mothers breastfeed while holding babies in arms. I also scored instances of mutual gaze and touch for each bout of breastfeeding. From time-diary interviews, I determined the frequency of breastfeeding episodes during a typical day for most mothers in the sample (62%). Coding and analysis are ongoing. So far, across both contexts and data collection methods, mothers breastfed their infants more frequently while in the gahvora than when in arms. However, duration of breastfeeding episodes showed no significant difference between contexts. Gaze occurred between all dyads in the sample in all breastfeeding episodes. When studying mutual touch, I scored mother touch and infant touch separately. Both mothers and infants touched more frequently when in arms, but the differences between contexts was negligible. This study will be one of the few to report observational measures of breastfeeding. It will add to the literature by offering a cultural account that contributes to knowledge about factors that may shape the future of breastfeeding.

POSTER: PSY-16

Exploring Maternal Speech During a Novel Infant Shape Sorting Task in Tajikistan

Nada Haikel, Denisse Corona

Faculty Mentor: Professor Lana Karasik
Department of Psychology

Maternal speech plays an important role in infant learning and development. Mothers offer various types of speech in the context of object play and infants use social information to guide their actions with objects. Most work on infant-mother object play has been conducted in Western samples where objects are abundant and play heavily scaffolded.

We collected data in Tajikistan where object play and infant-mother interactions may take on different forms given differences in childrearing practices and provisions of playthings. Tajik infants are placed in a gahvora cradle for several hours a day for the first years of infancy, restricting their movements and their interactions with others and objects. However, infants are surrounded by a community of people, providing a source of social information. Tajik mothers may not see themselves as play partners. Their roles may mostly consist of ensuring safety and health. Given the difference in culture and environment, we wanted to know what Tajik mothers say when given the opportunity to interact with their infants during a challenging novel task, and what kind of speech they provided.

Tajik infant-mother dyads (N=93) were observed longitudinally when infants were 12, 16, and 20 months. Mother-infant pairs participated in a 3-minute shape sorting task: Infants' attempts and bids to mothers were scored from video; mothers' speech was scored capturing functional information offered (spatial and action words) and praises. We hypothesized that caregivers may not give verbal information to aid the infants. Alternatively, there may be no difference in maternal speech when given the opportunity to interact with the infant during play. Specifically, we wondered if the verbal information consisted of praise. We hypothesized that verbal information given will lack praise but may include alternative information. We wanted to know if the amount of verbal praise given changes with age and infant ability. We hypothesized that there will be no change in amount of praise.

POSTER: PSY-17**Discovery Learning Approach****Ahmed Hussein**Faculty Mentor: Professor Leonard Ciaccio
Department of Psychology

The Discovery Learning Approach is a teaching methodology that emphasizes the learner's active involvement in the learning process. In this approach, students are encouraged to explore and experiment with a given problem or situation, leading to the discovery of new knowledge, or understanding. Discovery learning is a constructivist approach to teaching, meaning that it builds on the learner's prior knowledge and experiences to construct new understanding. The primary goal of the Discovery Learning Approach is to develop critical thinking skills and problem-solving abilities in students. This approach is often used in science, technology, engineering, and mathematics (STEM) fields, where experimentation and exploration are fundamental components of learning. Discovery learning encourages students to ask questions, analyze data, and draw conclusions on their own, without relying on a teacher's direction or guidance. However, this approach can be challenging for students who lack the necessary background knowledge and may struggle to connect new information with their existing understanding. In addition, discovery learning requires a considerable amount of time and effort from both teachers and students. The mandated syllabus often pushes the teacher toward topic coverage rather than the design of engaging explorative approaches to the facts. Various lines of evidence demonstrate the need for professional development for teachers for developing their skills requisite for designing "discovery-based curriculum". These tend to be expensive and time consuming which may not be feasible in all educational settings. Despite these challenges, the Discovery Learning Approach has been shown to be an effective teaching methodology in promoting deep learning and problem-solving skills. It can help students develop a love for learning and become independent, lifelong learners who are better equipped to succeed in an ever-changing world.

POSTER: PSY-18**PEBBLES Rock! Peer-Enhanced Blockchain-Based Learning Environments at CSI****Elizabeth Obadimu, Elmar Abu, Jessica Yuryev, Maryem Ahmed, Andrew Babajko, Zionarria Brockington, Jenna Onions**Faculty Mentor: Professor Dan McCloskey
Department of Psychology

We have implemented a peer-enhanced blockchain-based learning environment in two sections of Introductory Psychology (PSY100), the most enrolled college STEM course in the United States. The goal of this implementation was to improve the first year experience for CSI students by providing them with mentorship and skills to succeed in the class, as college students, and ultimately in the workforce. Groups of five students enrolled in these classes were assigned to peer leaders who met with them weekly to discuss upcoming projects and to see how the work in the class translates to skills that are valued by employers. An educational technology tool, developed by Decenture, was used to document the group meetings, monitor the skills development, provide students with analytics related to class performance, and provide blockchain-based credentials for the peer leaders. The use of technology allows the PEBBLE approach to be used in classes of any size, since team meetings and performance are all managed through the software. An estimated 39.7% of all US College Students take PSY100 in their freshman year, so the potential to have students learn how class projects relate to professional skills development could have a large impact, but the PEBBLE program was developed to be implemented in any college course. In this poster, we will share lessons learned and ideas for improving and expanding the PEBBLE model to other courses.

POSTER: PSY-19

Investigating Axo-glial Interactions between Midbrain Dopamine Axons and Oligodendroglial Cells in the Corpus Callosum

Vanessa Ayo-Jibunoh, Colin Alarcon

Faculty Mentor: Professor Leora Yetnikoff

Department of Psychology

Experience-dependent myelination is a recently discovered phenomenon where neural activity changes patterns of existing myelination or induces 'de novo' myelination by regulating oligodendroglial cells. Because myelin helps determine action potential conduction rates, changes in patterns of myelination have important functional consequences for brain function and synchronization of neural activity across various regions. However, we know little about which neurons are capable of regulating experience-dependent myelination. The goal of our study was to investigate the possible role of midbrain dopamine neurons in experience-dependent myelination of the corpus callosum, the largest white matter tract of the brain.

In a first series of experiments, we examined whether dopamine axons are present in the corpus callosum of adult wild-type mice using immunofluorescence for tyrosine hydroxylase (TH), the rate-limiting enzyme in the synthesis of dopamine. While these experiments revealed TH+ axons in the corpus callosum, we could not definitively conclude whether these axons were dopaminergic since TH is also expressed in noradrenergic neurons. Thus, in a second set of experiments we used a cre-dependent EYFP viral strategy in adult DAT-cre mice. These mice received an intra-cranial injection of AAV-EF1a-DIO-EYFP into the ventral tegmental area in order to specifically label with EYFP neurons that had an active promoter for the dopamine transporter, and one month later were killed and their brains prepared for analysis. Immunofluorescence for EGFP revealed EYFP+ axons in the corpus callosum, confirming the presence of midbrain dopamine axons in this white matter tract.

These experiments hold important implications for understanding the mechanisms underlying experience-dependent myelination. Future experiments will investigate how modulating midbrain dopamine neuron function alters myelin in the corpus callosum. Because dopamine-related neuropsychiatric diseases, such as schizophrenia and Parkinson's disorder, are also associated with altered myelination, this work may help refine therapeutic interventions in these diseases.

POSTER: PSY-20

Dopamine Receptor Transcript Expression by Oligodendroglial Cells in the Corpus Callosum

Josue D Criollo Mendoza, Shelby D Louis

Faculty Mentor: Professor Leora Yetnikoff

Department of Psychology

Myelination is a process in which oligodendrocytes produce a lipid-rich material which enwraps neuronal axons, improving the transmission of action potentials between neurons. It is now known that axon myelination is plastic, wherein daily life experiences can alter patterns of myelination through changes in neural activity, a phenomenon termed experience-dependent myelination. However, much remains to be understood about which neurons are capable of communicating with oligodendroglial cells to regulate experience-dependent myelination. Research from our lab has demonstrated that midbrain dopamine axons are present in the corpus callosum, the largest white matter tract of the brain, implicating dopamine neurons in experience-dependent myelination. However, whether dopamine neurons communicate with oligodendroglial cells is still unknown. In this study, our goal was to address this question by determining whether oligodendrocyte lineage cells in the corpus callosum express dopamine receptor transcripts. To investigate this, we obtained coronal brain sections containing the corpus callosum from adult male and female mice and used RNAscope and advanced microscope analysis software (IMARIS) to investigate the expression of dopamine d1 and d2 dopamine receptor transcripts by oligodendrocyte precursor cells (OPCs) and oligodendrocytes in this white matter tract. Our findings demonstrate that ~40% of OPCs express d1 and d2 dopamine receptor transcripts, whereas ~20% of oligodendrocytes express d1 and d2 receptor transcripts. These results lend support to our hypothesis that midbrain dopamine neurons participate in experience-dependent myelination of the corpus callosum and suggest that at least one mechanism may involve communication with OPCs and oligodendrocytes. Future research will investigate the role(s) of dopamine D1 and D2 receptors in the proliferation and differentiation of OPCs and in the survival of oligodendrocytes in the corpus callosum. Understanding the role of midbrain dopamine neurons in experience-dependent myelination may lead to the refinement of treatments for dopamine-related neuropsychiatric diseases, which are also frequently associated with altered myelination.

POSTER: PSY-21**Identifying Dopamine Synaptic Input to OPCs Using A Modified Rabies Retrograde Tracing Strategy****Xin Yan Zhu Jiang**

Faculty Mentor: Professor Leora Yetnikoff

Department of Psychology

Axon myelination by oligodendrocytes (OLs) can be modified by experience, a phenomenon termed experience-dependent myelination. The proliferation and differentiation of oligodendrocyte precursor cells (OPCs), which give rise to OLs, can be regulated by neural activity, but the neurochemical phenotype of synaptic inputs to OPCs is mostly unknown. Midbrain dopamine neurons may be one candidate involved in the regulation of OPC cellular activity. Recently, a modified rabies monosynaptic retrograde tracing strategy was used to show that forebrain OPCs receive synaptic inputs from a network of forebrain and thalamic neurons. Here, our goal was to investigate whether midbrain dopamine neurons make monosynaptic connections with OPCs in the corpus callosum (CC) and/or medial prefrontal cortex (mPFC) using this strategy. Double mutant *Pdgfra* CreER (*gp4-TVA*)^{fl} mice were injected with a single dose of tamoxifen (100mg/kg) to allow cre expression in OPCs, which in turn allows the cell specific expression of rabies glycoprotein and TVA receptor. Three days later, the mice received intracranial injections of the ASLV-A-pseudotyped *gp4*-deleted rabies virus encoding EGFP into the CC or mPFC. In this way, the modified EGFP-tagged rabies virus could react with the glycoprotein and TVA receptor expressed by OPCs to enable retrograde spread of the virus across single synapses, labeling presynaptic input neurons. Mice were killed five days later and coronal brain sections were obtained. Preliminary analyses demonstrate that EGFP-positive cells are present in various midbrain dopamine cell body regions of *Pdgfra* CreER (*gp4-TVA*)^{fl} mice after injection of the modified GFP-tagged rabies virus. In the ventral tegmental area and substantia nigra, 89% and 86% of EGFP+ cells, respectively, colocalized with cells labeled with tyrosine hydroxylase, the rate limiting enzyme in the synthesis of dopamine. These results demonstrate that OPCs in the forebrain receive synaptic input from midbrain dopamine neurons and suggest that dopamine may play a role in experience-dependent myelination. This may have important implications for understanding dopamine-related neuropsychiatric disorders, such as schizophrenia and drug addiction, as they are also associated with altered myelination.

SOCIOLOGY AND ANTHROPOLOGY

POSTER: SOC/ANT-01

The Sister Mura Foundation: Serving International Migrants Living with HIV and AIDS in Johannesburg, South Africa

Jericee A Mitchell

Faculty Mentor: Professor Jean Halley

Department of Sociology and Anthropology

This project is a study of the Sister Mura Foundation (SMF), which has been providing health information, psychological counseling, and social services to over 140 adults and over 60 teenagers who are migrants living with HIV and AIDS in Johannesburg, South Africa. The foundation also provides limited economic assistance, including help with school fees for children; emergency housing; and legal aid. It is the only nongovernment organization in Johannesburg that assists migrants of any status, including those without approved government documentation.

My mentors, Dr. Ron Nerio and Dr. Jean Halley, have conducted interviews with 28 clients of the Sister Mura Foundation, along with the organization's full-time nurse, part-time social worker, volunteer chairperson, and members of the board of directors. I am coding these interviews to understand the needs and experiences of the SMF clients as well as the perceptions of the leadership and staff regarding the organization's best practices. My analysis will discern patterns related to the following: how clients learn about their HIV status, how they adapt to life after this discovery, what leads them to become clients of the SMF, how they obtain anti-retroviral medications and other necessary medical treatments, and how they cope with the stigmas sometimes attached to HIV+ status. Coding the interviews with the professional and volunteer staff will reveal the near-term and long-term needs of the organization and how well the staff believes the SMF is meeting the needs of clients and future potential clients. My contribution will enable the SMF to better evaluate its provision of vital services and will help the general reader understand more about the importance of support for migrants with HIV and AIDS in South Africa's largest city.

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Sarah Abdel Fatah	Sarah Berger	Psychology	PSY-02
Mayar Abdelmoneim	Alfred Levine	Engineering and Environmental Science	EES-10
Asher J Abraham	Xin Jiang	Engineering and Environmental Science	EES-04
Jessica Abrajan	Ting Yuan	Curriculum and Instruction	C&I-04
Elmar Abu	Katie Cumiskey	Psychology	PSY-09
	Dan McCloskey	Psychology	PSY-18
Amaury B Acevedo	Jane Alexander	Engineering and Environmental Science	EES-02
Louis Adorno	Cindy Wong	Media Culture	MC-02
Karam Afaneh	Nancy Liu-Sullivan	Biology	BIO-10
Nadeen Ahmad	Ting Yuan	Curriculum and Instruction	C&I-04
Maryem Ahmed	Dan McCloskey	Psychology	PSY-18
GraceAnna Akparanta	Katie Cumiskey	Psychology	PSY-09
Janet Akselrud	Joseph Maher	Mathematics	MTH-01
Momtahina Akter	Alejandra Alonso	Biology	BIO-03
Colin Alarcon	Leora Yetnikoff	Psychology	PSY-19
Bushra Alrawhani	Ting Yuan	Curriculum and Instruction	C&I-04
Ayotunde Anidugbe	Shiryn Sukhram	Biology	BIO-15
Aya Ashour	Alan Lyons	Chemistry	CHM-04
Brandon Auerbach	Chang-Min Kim	Engineering and Environmental Science	EES-07
Michelle Avila	Arlene Farren	Nursing	NRS-02
Vanessa Ayo-Jibunoh	Leora Yetnikoff	Psychology	PSY-19
Andrew Babajko	Dan McCloskey	Psychology	PSY-18
Shakira Baksh	Sarah Berger	Psychology	PSY-03
Jeremy Bodin	Xin Jiang	Engineering and Environmental Science	EES-04
Zionarria Brockington	Dan McCloskey	Psychology	PSY-18
Simon Christian	Zhanyang Zhang	Computer Science	CSC-05
Zeinab S Cisse	Greg R Phillips	Biology	BIO-14
Dennis W Cobbina	Alexandru Voicu	Economics	ECO-01
Samantha M Colandrea	Ting Yuan	Curriculum and Instruction	C&I-03
Ahava Collado	Rupal Gupta	Chemistry	CHM-02
Lara A Colombo	Nancy Liu-Sullivan	Biology	BIO-09
Denisse Corona	Lana Karasik	Psychology	PSY-16
Josue D Criollo Mendoza	Leora Yetnikoff	Psychology	PSY-20
Kevin Cruz Tapia	Alexandru Voicu	Economics	ECO-02
Michael Cupelli	Karen Arca-Contreras,	Nursing	NRS-01
	Danna Curcio		
Aman Dhillon	Alfred Levine	Engineering and Environmental Science	EES-08
Annemarie DiPaolo	Sarah Berger	Psychology	PSY-02
John Doyle	Alejandra Alonso	Biology	BIO-02
Danie Duka	Jinyoung Kim,	Educational Studies	EDD-01
	Myung-Jin Kim		

Student Scholars**Poster Presentations - Student Scholars**

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Christopher Edwards	Alexandru Voicu	Economics	ECO-03
Nourhan Elzayat	Nancy Liu-Sullivan	Biology	BIO-11
Hamzah Farah	Alfred Levine	Engineering and Environmental Science	EES-11
Lauren Farley	Ting Yuan	Curriculum and Instruction	C&I-04
Nadzeya Fliaha	Sharon Loverde	Computer Science	CSC-03
Diego Franco	Rupal Gupta	Chemistry / Biochemistry	CHM-03
Angye Galan	Isabel Rechberg	Management	MGT-01
Jabari Gallier	Alfred Levine	Engineering and Environmental Science	EES-11
James Gardiner	Sarah Berger	Psychology	PSY-01
Lawrence Gleyzer	Probal Banerjee	Biology	BIO-04
Madison L Gorodovich	Kalliope Valadakis	Educational Studies	EDD-03
Phillip Grunkin	Alfred Levine	Engineering and Environmental Science	EES-15
Andrea M Guifarro	Katie Cumiskey	Psychology	PSY-08
Nada Haikel	Lana Karasik	Psychology	PSY-16
Medina Hajdarevic	Jane Alexander	Engineering and Environmental Science	EES-03
Alaa Hamdan	Probal Banerjee, Shuiqin Zhou	Chemistry/Biochemistry	CHM-01
Areej Hassan	Zaghloul Ahmed	Physical Therapy	PHT-01
Alessandra G Hayes	Kristen Gillespie-Lynch	Psychology	PSY-12
Ahmed Hussein	Leonard Ciaccio	Psychology	PSY-17
Abdul-Rasaq M Ishola	Alfred Levine	Engineering and Environmental Science	EES-12
Xhesika Istrefi	Halil Ege Ozen	Political Science and Global Affairs	PSGA-02
Michael Ivany	Isabel Rechberg	Management	MGT-02
Nethma Jayaweera	Judit Kerekes	Curriculum and Instruction	C&I-02
Irene Kalogiannis	Sarah Berger	Psychology	PSY-03
Fatima Kamara	Nancy Liu-Sullivan	Biology	BIO-10
Sandi Kelada	Alejandra Alonso	Biology	BIO-01
Bayan Khalil	Judit Kerekes	Curriculum and Instruction	C&I-02
	Ting Yuan	Curriculum and Instruction	C&I-04
Rolla Khass	Ting Yuan	Curriculum and Instruction	C&I-04
George N Khoury	Faiza Peetz	Biology	BIO-13
Kayla A Le	Michelle Esposito	Biology	BIO-05
Michael Levitas	Alexandru Voicu	Economics	ECO-01
Meiyuan Lin	Paul E Orzechowski	Accounting and Finance	ACC/FNC-02
Annie Liu	Andrew Colbeck	Accounting and Finance	ACC/FNC-01
Christopher W Lombardi	Alexandru Voicu	Economics	ECO-03
Shelby D Louis	Leora Yetnikoff	Psychology	PSY-20
KinWai Lui	Alexandru Voicu	Economics	ECO-03
Nour Maali	Judit Kerekes	Curriculum and Instruction	C&I-02
Abusayem Mahfuj	Alfred Levine	Engineering and Environmental Science	EES-09
Marwan Mahmoud	Alexandru Voicu	Economics	ECO-03
	Bryan Weber	Economics	ECO-04

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Nicholas A Marino	Megan Caldwell	Psychology	PSY-06
Thomas A Mazza	Alexandru Voicu	Economics	ECO-03
Brooke McKeon	Kalliope Valadakis	Educational Studies	EDD-03
Nancy McKeown	Michelle Esposito	Biology	BIO-07
George Melek	Sarah Zelikovitz	Computer Science	CSC-04
Dixy Melendez	Sarah Berger	Psychology	PSY-02
Alice Mensah	Nancy Liu-Sullivan	Biology	BIO-10
Jericee A Mitchell	Jean Halley	Sociology and Anthropology	SOC/ANT-01
Alessandria Modawar	Dan Zhang	Marketing	MKT-02
Rebecca Moller	Ting Yuan	Curriculum and Instruction	C&I-04
Shontel Nedderman	Alexandru Voicu	Economics	ECO-01
Andrew W Ngai	Muhammad Zia	Biology	BIO-17
Kristiana Nicotra	Alanna Gibbons	Curriculum and Instruction	C&I-01
Jediah N Noel	Xin Jiang	Engineering and Environmental Science	EES-05
Jubal N Noel	Xin Jiang	Engineering and Environmental Science	EES-05
Elizabeth Obadimu	Dan McCloskey	Psychology	PSY-18
Jenna Onions	Dan McCloskey	Psychology	PSY-18
Sarah I Owda	Nancy Liu-Sullivan	Biology	BIO-12
Cassandra I Paone	An-Yun Yeh	Nursing	NRS-03
Francesca Papalia	Ting Yuan	Curriculum and Instruction	C&I-04
Alexander D Pascone	William G Wallace	Biology	BIO-16
Kevin Patzer	Alfred Levine	Engineering and Environmental Science	EES-14
Andrea Perrone	Valkiria Duran-Narucki	Psychology	PSY-11
Julia Pietropinto	Ting Yuan	Curriculum and Instruction	C&I-04
Raphael Pollante	Valkiria Duran-Narucki	Psychology	PSY-10
Gabriella L Quinones	Nancy Shuojia Guo	Marketing	MKT-01
Abeer Ramadan	Ting Yuan	Curriculum and Instruction	C&I-04
Catherine Rimerov	Alfred Levine	Engineering and Environmental Science	EES-08
Michael A Rivera	Sos Agaian	Computer Science	CSC-02
Lizbet Rodriguez	Sarah Berger	Psychology	PSY-01
George B Salama	Alfred Levine	Engineering and Environmental Science	EES-09
Lily K Samborska	Nicole LaMassa	Biology	BIO-08
Sydney Saulino	Jinyoung Kim, Myung-Jin Kim	Educational Studies	EDD-02
Nawalagedona Senanayake	Nancy Liu-Sullivan	Biology	BIO-10
Halah M Shawaya	Halil Ege Ozen	Political Science and Global Affairs	PSGA-01
Shaan Shirazi	Rupal Gupta	Chemistry/Biochemistry	CHM-03
Victoria Siciliano	Ting Yuan	Curriculum and Instruction	C&I-04
Ankesh Srivastava	Alfred Levine	Engineering and Environmental Science	EES-11
Yorquiea Suleiman	Judit Kerekes	Curriculum and Instruction	C&I-02
Maryam Syed	Patricia J Brooks, Arshia Lodhi	Psychology	PSY-05

Student Scholars

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Avi Szczupakiewicz	Chang-Min Kim	Engineering and Environmental Science	EES-06
Isra Tahir	Sarah Berger	Psychology	PSY-04
Jay B Tobon	Jane Alexander	Engineering and Environmental Science	EES-01
Christian Tsafack	Alfred Levine	Engineering and Environmental Science	EES-15
Sara Turku	Michelle Esposito	Biology	BIO-06
Sabella Vaserman	Soon Ae Chun	Marketing	MKT-03
Yamilet Vasquez	Katie Cumiskey	Psychology	PSY-07
Brian Villani	Lana Karasik	Psychology	PSY-15
Maxim Voyevoda	Sos Agaian	Computer Science	CSC-01
Gabriele G Wagner	Alfred Levine	Engineering and Environmental Science	EES-09
Kelli Wallace	Rosane K. Gertner	Marketing	MKT-04
Peter Wang	Alfred Levine	Engineering and Environmental Science	EES-13
Erin Westgate	Ting Yuan	Curriculum and Instruction	C&I-04
John Wilson	Cynthia Chris	Media Culture	MC-01
Lauren Wilson	Bilge Yesil	Media Culture	MC-03
Danny Xia	Alfred Levine	Engineering and Environmental Science	EES-15
Rayhan Yahya	Jeffrey Goodman	Psychology	PSY-13
Katherine Yenna	Halil Ege Ozen	Political Science and Global Affairs	PSGA-03
Yulin Yu	Lana Karasik	Psychology	PSY-14
Jessica Yuryev	Dan McCloskey	Psychology	PSY-18
Wei Zhu	Alfred Levine	Engineering and Environmental Science	EES-10
Xin Yan Zhu Jiang	Leora Yetnikoff	Psychology	PSY-21

Faculty Mentors

DEPARTMENT	FACULTY NAME	PRESENTATION ID
Accounting and Finance	Andrew Colbeck	ACC/FNC-01
	Paul E Orzechowski	ACC/FNC-02
Biology	Alejandra Alonso	BIO-01, BIO-02, BIO-03
	Probal Banerjee	BIO-04
	Michelle Esposito	BIO-05, BIO-06, BIO-07
	Nicole LaMassa	BIO-08
	Nancy Liu-Sullivan	BIO-09, BIO-10, BIO-11, BIO-12
	Faiza Peetz	BIO-13
	Greg R Phillips	BIO-14
	Shiryn Sukhram	BIO-15
	William G Wallace	BIO-16
	Muhammad Zia	BIO-17
Chemistry	Probal Banerjee	CHM-01
	Rupal Gupta	CHM-02, CHM-03
	Alan Lyons	CHM-04
	Shuiqin Zhou	CHM-01
Computer Science	Sos Agaian	CSC-01, CSC-02
	Sharon Loverde	CSC-03
	Sarah Zelikovitz	CSC-04
	Zhanyang Zhang	CSC-05
Curriculum and Instruction	Alanna Gibbons	C&I-01
	Judit Kerekes	C&I-02
	Ting Yuan	C&I-03, C&I-04
Economics	Alexandru Voicu	ECO-01, ECO-02, ECO-03
	Bryan Weber	ECO-04
Educational Studies	Jinyoung Kim	EDD-01, EDD-02
	Myung-Jin Kim	EDD-01, EDD-02
	Kalliope Valadakis	EDD-03
Engineering and Environmental Science	Jane Alexander	EES-01, EES-02, EES-03
	Xin Jiang	EES-04, EES-05
	Chang-Min Kim	EES-06, EES-07
	Alfred Levine	EES-08, EES-09, EES-10, EES-11, EES-12, EES-13, EES-14, EES-15
Management	Isabel Rechberg	MGT-01, MGT-02
Marketing	Soon Ae Chun	MKT-03
	Rosane K. Gertner	MKT-04
	Nancy Shuojia Guo	MKT-01
	Dan Zhang	MKT-02
Mathematics	Joseph Maher	MTH-01
Media Culture	Cynthia Chris	MC-01
	Cindy Wong	MC-02
	Bilge Yesil	MC-03
Nursing	Karen Arca-Contreras	NRS-01
	Danna Curcio	NRS-01
	Arlene Farren	NRS-02
	An-Yun Yeh	NRS-03
Physical Therapy	Zaghloul Ahmed	PHT-01

Faculty Mentors

Faculty Mentors

DEPARTMENT	FACULTY NAME	PRESENTATION ID
Political Science & Global Affairs	Halil Ege Ozen	PSGA-01, PSGA-02, PSGA-03
Psychology	Sarah Berger	PSY-01, PSY-02, PSY-03, PSY-04
	Patricia J Brooks	PSY-05
	Megan Caldwell	PSY-06
	Leonard Ciaccio	PSY-17
	Katie Cumiskey	PSY-07, PSY-08, PSY-09
	Valkiria Duran-Narucki	PSY-10, PSY-11
	Kristen Gillespie-Lynch	PSY-12
	Jeffrey Goodman	PSY-13
	Lana Karasik	PSY-14, PSY-15, PSY-16
	Arshia Lodhi	PSY-05
	Dan McCloskey	PSY-18
	Leora Yetnikoff	PSY-19, PSY-20, PSY-21
Sociology and Anthropology	Jean Halley	SOC/ANT-01

Students in Honors Programs

MACAULAY HONORS

VERRAZZANO HONORS

CUNY RESEARCH SCHOLARS

Janet Akselrud
 Colin Alarcon
 Aya Ashour
 Simon Christian
 Ahava Collado
 Michael Cupelli
 John Doyle
 Nadzeya Fliaha
 Lawrence Gleyzer
 Alaa Hamdan
 Areej Hassan
 Alessandra G Hayes
 Christopher W Lombardi
 Marwan Mahmoud
 George Melek
 Cassandra I Paone
 Andrea Perrone
 Gabriella L Quinones
 Lizbet Rodriguez
 Sara Turku
 Sabella Vaserman Brian
 Villani
 Kelli Wallace
 Katherine Yenna
 Xin Yan Zhu Jiang

Sarah Abdel Fatah
 Asher J Abraham
 Louis Adorno
 Brandon Auerbach
 Michelle Avila
 Samantha M Colandrea
 Lara A Colombo
 Danie Duka
 Angye Galan
 Madison L Gorodovich
 Nada Haikel
 Ahmed Hussein
 Michael Ivany
 Irene Kalogiannis
 Sandi Kelada
 Bayan Khalil
 Rolla Khass
 Kayla A Le
 Meiyuan Lin
 Annie Liu
 Nicholas A Marino
 Thomas A Mazza
 Brooke McKeon
 Nancy McKeown
 Jericee A Mitchell
 Kristiana Nicotra
 Jediah N Noel
 Jubal N Noel
 Sarah I Owda
 Alexander D Pascone
 Raphael Pollante
 Lily K Samborska
 Sydney Saulino
 Shaan Shirazi
 Avi Szczupakiewicz
 Erin Westgate
 John Wilson
 Lauren Wilson
 Yulin Yu

Elmar Abu
 GraceAnna Akparanta
 Nourhan Elzayat
 Shelby D Louis
 Jericee A Mitchell
 Jay B Tobon
 Yamilet Vasquez
 Maxim Voyevoda
 Peter Wang

Acknowledgments

Cheryl Adolph	Institutional Advancement and External Affairs
Alyson Bardsley	Department of English; Co-Director for Writing Across the Curriculum
Fausto Canela	Faculty Center for Professional Development
Rosanne Carlo	Department of English; Co-Director for Writing Across the Curriculum
Cynthia Chris	Department of Media Culture
Cheryl Craddock	Verrazzano Honors Program
George Davis IV	Communications and Marketing
Nina Del Gatto	Office of the Provost/Academic Affairs
Crystal Deosaran	Alumni Relations
Aleksander Dudek	Information Technology Services
Rosmery Frangoulis	Sponsored Programs and Research
Mariya Gershkovich	Information Technology Services
Philip Halsey	Reprographics
Maria Ivanova	CUNY Research Scholars Program
John Jankowski	Center for the Arts
Mark Lewental	Information Technology Services
Terry Mares	Communications and Marketing
Jodi Merendino	Auxiliary Services
Donna Oliva	Sponsored Programs and Research
Jamel Osbia	Student Government
David Pizzuto	Communications and Marketing
Ann Rodberg	Design Services
Anita Romano	Macaulay Honors College
Sarolta Takács	Dean of Humanities and Social Sciences
Joyce Taylor	Information Technology Services
Priscila Villacis	Sponsored Programs and Research
Rosemary Vitale	Office of the President
Siona Wilson	Department of Performing and Creative Arts

Writing Across the Curriculum Fellows

Ankita Aggarwal
Youssef Boktor
Juan Carlos Garcia
Christopher Morabito

Organizers

Lynne Lacomis, Danté A. Tawfeeq, and George Vachadze

Office of the Associate Provost for Graduate Studies, Research, and Institutional Effectiveness
College of Staten Island
2800 Victory Boulevard, Bldg. 1A - 211
Staten Island, NY 10314

Disclaimer and Affirmation

I understand that this event will be recorded. I hereby grant the College of Staten Island and The City University of New York (CUNY) permission to use my name, the name of the educational program in which I am enrolled, and my photograph, video, or any recording of me taken on for any purpose that CUNY may deem appropriate, including without limitation educational uses, promotion, and publicity of CUNY and its programs and activities, in perpetuity in in-house publications as well as in all other media, whether now known or later developed. I waive any right to inspect and approve such use. I agree to hold harmless CUNY from any liability that may arise from such use of my name, educational program, and/or likeness.