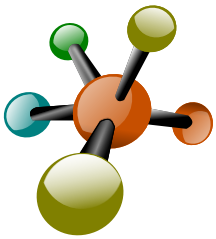
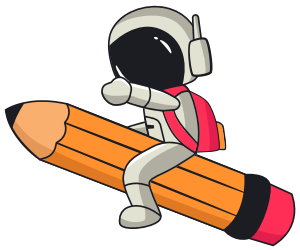
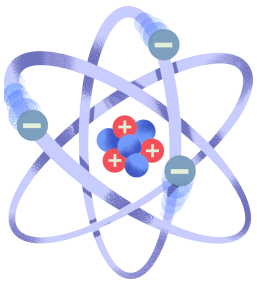
Kingsborough Community College



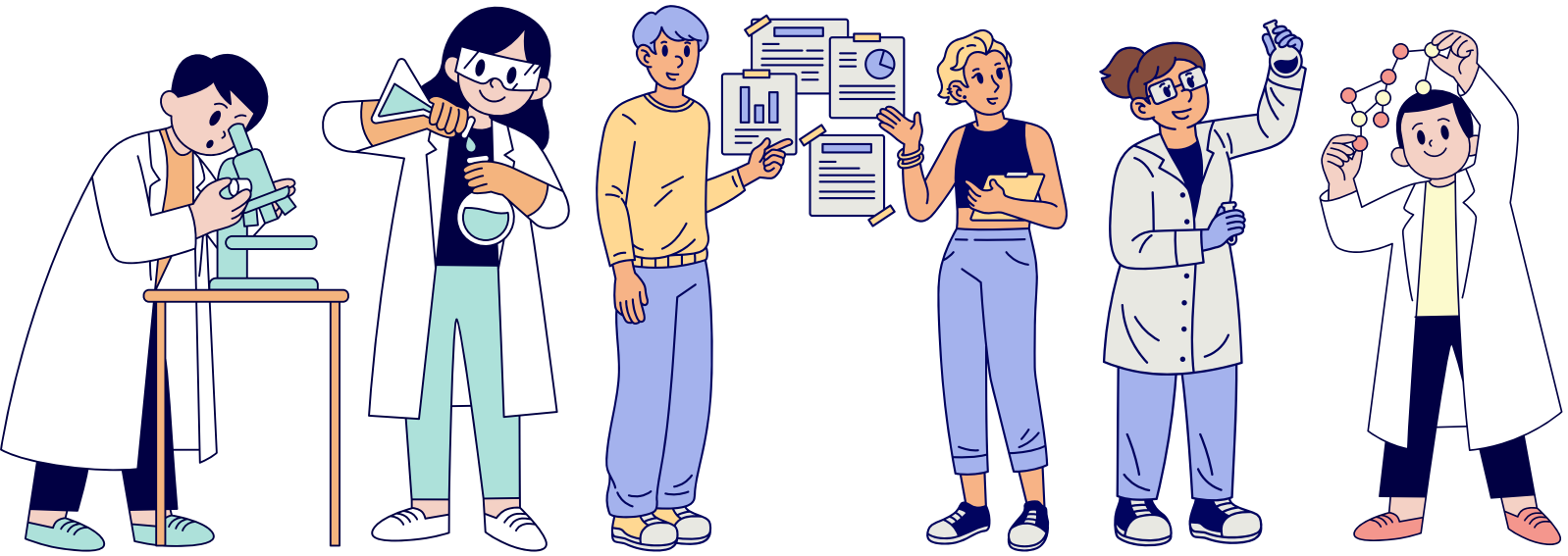


CUNY | Research Scholars Program

SPRING PRESENTATIONS



Friday April 25, 2025
9am - 4pm
V-219



Welcome to the annual Winter Presentation of the CUNY (City University of New York) Research Scholars Program (CRSP) at Kingsborough Community College (KCC). The mission of CRSP is to encourage undergraduate participation in authentic research. This presentation showcases works in progress from a diverse community of scholars engaging in a spectrum of fields: Biology, Behavioral Science, Business, Communication and Performing Arts, English, Nursing, Physics, Earth and Planetary Science, Speech Communications & Linguistics, Psychology, and Sociology are all represented.

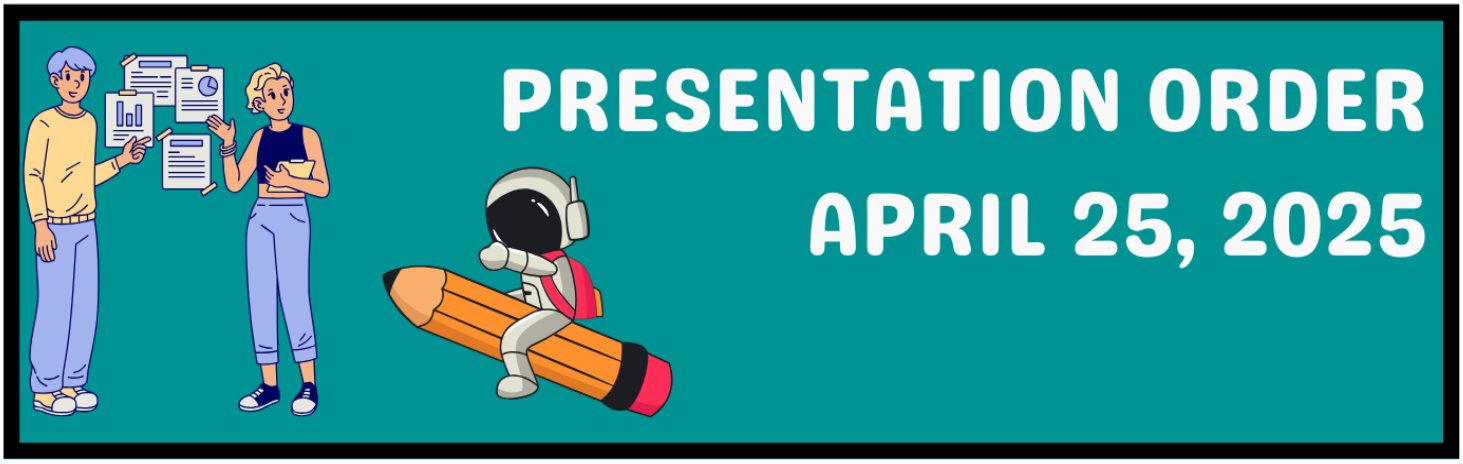
CRSP would not be possible without the tireless work of our mentors: thank you all.

We also thank our mentors' respective Department Chairs (Sarah Dillion, Tyronne Johnson, John Mikalopas, Catherine Olubummo, Stuart Parker, and Kristin Polizzotto) for facilitating involvement of faculty in CRSP.

We are grateful for the continued support of Interim Senior Vice President for Academic Affairs and Provost, Dr. Sharon Warren Cook, Associate Provost and Dean of Health Programs, Dr. Mary Dawson and Dean of Faculty, Dr. Gordon Alley-Young and their team at KCC.

We sincerely appreciate the photos taken by Tonya Collins and shared with us by the KCC Office of Communication and Marketing.

And finally, thank you: Ron Nerio, Veer Shetty, and Joshua Barnes at CUNY Central.



2025 Spring Presentations
V-219 (Terrace Room)
Kingsborough Community College

9:30 AM Registration/Sign-in/Breakfast/Session A Poster Set-up

10:00 AM **Opening and Welcoming Remarks**
Opening Remarks – Dr. Farshad Tamari
Director, KCC CUNY Research Scholars Program
Welcome Remarks – Dr. Mary Dawson
KCC Associate Provost and Dean of Health Programs
Guest Speaker – Ms. Victoria Flores-Almazan
CRSP and KCC Alumni

10:20 AM Student Presentations – **Session A**

12:00 PM Student Poster Session (Q&A) – **Session A**

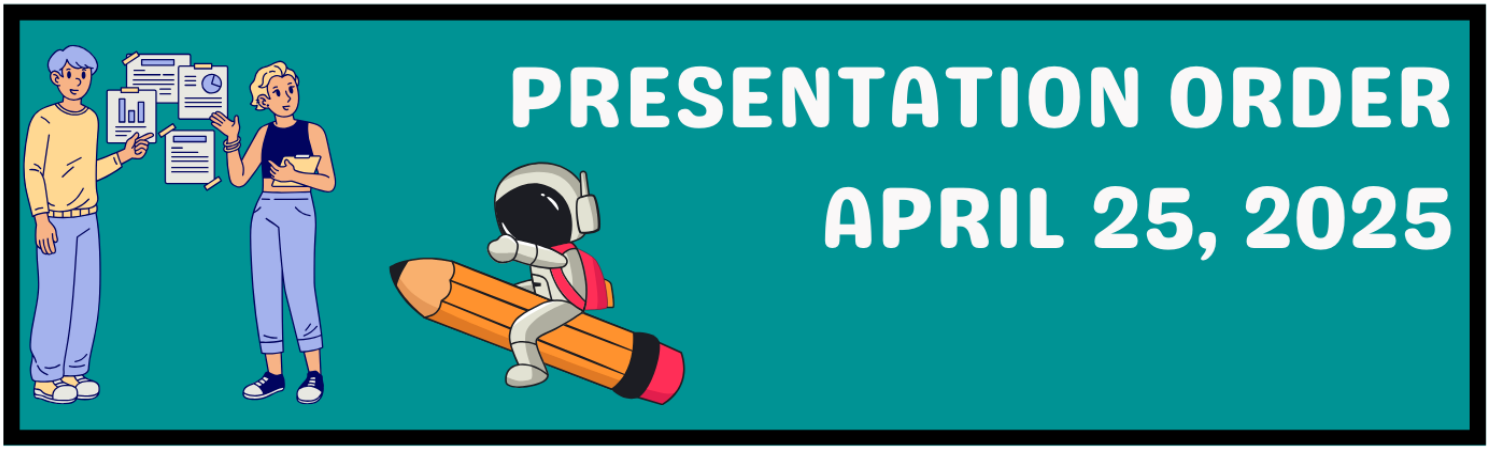
12:45 PM Lunch

1:40 PM Student Presentations – **Session B**

3:25 PM Student Poster Session (Q&A) – **Session B**

3:55 PM Featured Speaker Announced and Closing Remarks

4:00 PM Spring Presentations Conclude



9:30 AM	Registration and Session A Poster Set-up	
10:00 AM	Dr. Tamari - Welcome Remarks	
10:05 AM	Dr. Mary Dawson - Welcome Remarks	
10:10 AM	Victoria Flores-Almazan - Guest Speaker	
Session A		
10:20 AM	Niharika Singh	Tyronne Johnson & Anupam Pradhan
10:33 AM	Mireya Cortes	Steven Jaret
10:45 AM	Elizabeth Cacioppo	Michael Danza
10:57 AM	Faruq Anjorin	Steven Jaret
11:10 AM	Tanzeela Jahangir	Nate Cooper
11:23 AM	Lorasia Swift	Kristin Polizotto
11:25 AM	Tareq Awawdeh	Roberto Mariani
11:37 AM	Sukhrob Ulugmuratov	Roberto Mariani
11:50 AM – 1:30 PM	Break | Session A - Poster Q&A | Lunch | Session B Poster Set-up	
Session B		
1:40 PM	Shaniqua Johnson Simmons	Sue-Melissa Burgher
1:50 PM	Anastasiia Tarasova	Farshad Tamari
2:00 PM	Mykyta Satanovskyy	Michael Danza
2:10 PM	Sigournia Tait & Joshua Johnson	Dmitry Brogun
2:20 PM	William Smith	Farshad Tamari
2:30 PM	Maureen Sam-Okomgboeso	Careen Purcel
2:40 PM	Lorenzo Progonati	Michael Danza
2:50 PM	Wyche Auguste	Kristin Polizotto
3:00 PM	Solomon Asotie	Roxanne West
3:10 PM	Doha Omer	Raymond Fong
3:20 – 3:55 PM	Break | **Session B - Poster Q&A**	
3:55 PM	Featured Speaker Announced and Closing Remarks	
4:00 PM	Event Concludes	

Micro-Raman Imaging of High-Pressure Phases in Gujba Meteorite: Insight into Shock Metamorphism

Anjorin Faruq
Mentor: Steven Jaret
Kingsborough Community College

The Gujba meteorite, discovered in northern Nigeria in 1984, belongs to the CBa chondrite group. It is characterized by its high metal content (approximately 60% by volume), large metal clasts, and barred olivine chondrules, which formed by melting of dust in the solar nebula [1] or by planetesimal-scale collisions after the nebula dissipated [2]. Previous studies, including those by [1], have identified high-pressure phases such as wadsleyite and majorite in Gujba, indicating shock pressures exceeding 19 GPa and temperatures near 2000°C during impact events on its parent body. These distinctive structural and mineralogical features make Gujba an exceptional specimen for studying shock metamorphism and early planetary collision dynamics, offering valuable insights into the complex history of its parent body.

We used Raman spectroscopy to analyze high-pressure mineral phases in the Gujba meteorite, focusing on identifying wadsleyite, majorite, and other high-pressure indicators. Raman spectra were collected from three regions of the meteorite, including chondrules and the matrix. We collected both individual point spectra and micro-Raman images of larger regions within the sample. Imaging is a relatively new technique but has quickly become a highly used method for assessing the distribution of key phases, particularly small phases associated with shock in meteorites and impactites. Mirco-Raman spectra were collected using a WiTec Alpha 500R Confocal microscope system at the American Museum of Natural History. Raman spectra were collected using a 50X objective, 300 g/mm grating, and 532 nm laser with 5 mW laser power. Spot size is 763 nm laterally. Individual spectra were collected with 60 scans each with 1 second integration time. Integration time for images was 0.15 s over an area of 200 x 80 microns. Images generate hyperspectral data cubes (x, y, spectra) and were processed as batch to remove cosmic rays and normalize the background. Color images were produced by assigning a color to the intensity of the primary peak within each phase.

Area 1 a large, barred olivine in which the olivine bars show both brittle and plastic deformation, previously measured by [1]. Here, we identified primarily olivine and enstatite, with rare majorite. Most notably we see individual spectra with a broad peak at 356 Δcm^{-1} and narrow peaks at 820 Δcm^{-1} and 853 Δcm^{-1} consistent with results of [1].

In Area 3, we have identified large olivine and pyroxene grains in fine-grained matrix (Fig 1). The pyroxene present are two different phases: enstatite and clinoenstatite, a higher-pressure phase of enstatite-composition (Fig 1). Clinoenstatite has a Raman spectrum similar to orthoenstatite, but a distinct doublet at 1012 and 1032 Δcm^{-1}. Additionally, in the matrix, we see a combination of olivine, and olivine + majorite (Fig 1B).

In Area 2, chondrule fragments and adjacent matrix show a distinctly different mineral assemblage (Figures. 2). Here we identified olivine, enstatite, and wadsleyite, a high-pressure polymorph of olivine (Fig. 2). Olivine shows Raman spectra with prominent peaks at (820 Δcm^{-1} and 853 Δcm^{-1}). Enstatite (clinoenstatite) exhibits a doublet near 684 Δcm^{-1} and 686 Δcm^{-1} and distinct peak at 1012 Dcm^{-1}. Wadsleyite is identified by a peak at 918 Δcm^{-1} and 723 Δcm^{-1}.

Raman mapping further highlights the spatial distribution of these minerals, with olivine, enstatite, and wadsleyite forming localized regions within the meteorite matrix.

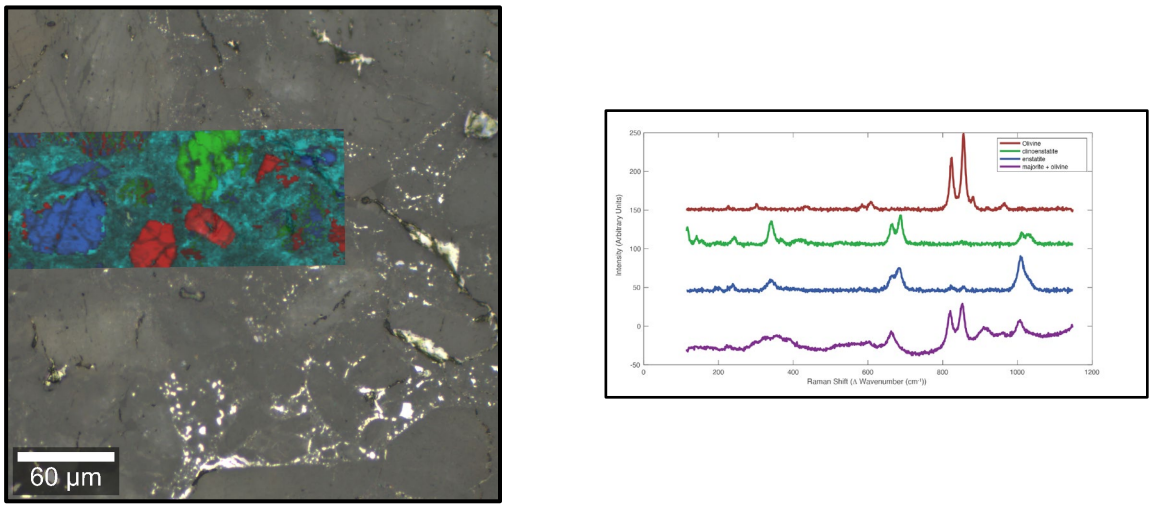


Figure 1: A) Raman image overlay on a reflected light image of Area 1. Red = olivine, Blue = orthoenstatite, and Green = clinoenstatite. **B)** Associated Raman spectra from the region in Area 1 shown in A. NOTE: the matrix consists of a mix of phases, including majorite+olivine within the same spot.

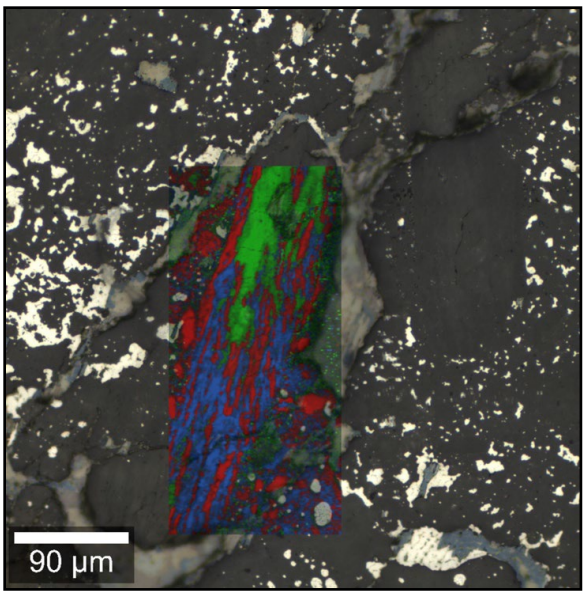


Figure 2: Raman image overlaid on a reflected light image of a chondrule fragment. The colors represent key minerals: green (wadsleyite), blue (enstatite), and red (olivine), highlighting their spatial distribution.

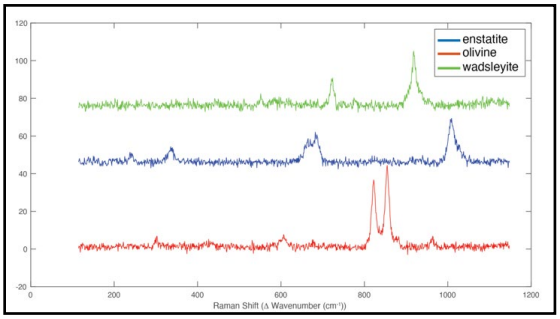


Figure 3: Raman spectra for enstatite (blue), olivine (red), and wadsleyite (green), showing their characteristic peaks and chemical representation

As previously described [1] high pressure phases wadsleyite and majorite have been identified in Gujba. Interestingly, the shock effects are not identical in all chondrules and varies on the scale of micrometers. Despite the deformed olivine in Area 1, no high-pressure phases were found within the olivine in the chondrule. However, adjacent to the chondrule, majorite occurs particularly adjacent to and around the olivine in the chondrules [1]. The majorite + olivine mixture occurs at the scale smaller than our spot size and suggests an intimate mix at the nano-scale. In Area 2, we see the presence of both orthoenstatite and clinoenstatite. Clinoenstatite has not previously been recognized in Gujba, but likely because the Raman spectra are quite similar. We base our distinction on the slightly recognition that orthoenstatite has a narrower peak at 1012 Dcm^{-1}, whereas clinoenstatite shows a doublet with a peak also at 1032 Δcm^{-1}. Based on static

experiments [3], the orthoenstatite-clinoenstatite transition occurs between 8 and 12 GPa, but below the majorite transition around 16 GPa.

In the Area 3 (Figure 3) majorite is not found, but instead olivine, enstatite and wadsleyite occur. The distribution of wadsleyite appears to follow the pre-shock texture in the host chondrule, suggesting solid state transformation. Previous work has suggested shock conditions of 18 GPa not to exceed 20 GPa, where wadsleyite transforms to ringwoodite [4]. Although the assemblage of high-pressure phases differs across the entire sample, the estimated shock pressures are relatively similar, varying only ~5 GPa between regions. This level of variability is consistent with the expected heterogeneity within impacts and highlights the importance understanding the full mineral assemblages in shocked materials.

Acknowledgments: We acknowledge the use of the DEVA Raman Spectroscopy Database (https://www.devaweb.com) and the Handbook of Raman Spectra for Geology provided by Geologie-Lyon (https://geologie-lyon.fr) as essential resources for this research. We also thank Denton Ebel and the American Museum of Natural History for sample access.

Reference: [1] Weisberg M. K. et al. (2010) Meteoritics & Planet. Sci., 45, 873–884. [2] Krot, A., et al. (2005). Nature 436, 989–992. https://doi.org/10.1038/nature03830 [3] Davies et al., in prep [4] Katsura and Ito, (1989). JGR 94 B11 15,663 - 15,670,

Assessing the Effectiveness of N95 and Surgical Masks in Filtering Surgical Smoke with and without Smoke Evacuators

Solomon Asotie
Mentor: Professor Roxanne West
Kingsborough Community College

Surgical smoke, a byproduct of electrocautery and laser procedures, poses potential health risks to healthcare workers. This study examines the effectiveness of N95 masks and surgical masks in filtering surgical smoke, both with and without the use of smoke evacuators. A review of existing literature and filtration data reveals that N95 masks filter out 87–95% of smoke particles, while surgical masks are less effective, blocking only 60–70%. When smoke evacuators are used, both masks perform significantly better—N95 masks can reach up to 100% filtration efficiency, and surgical masks improve to 70–80%. Despite this, many healthcare facilities do not consistently implement smoke evacuation systems due to a lack of standardized policies. These findings emphasize the need for improved protective measures and greater adoption of smoke evacuation systems in operating rooms to safeguard healthcare professionals from the harmful effects of surgical smoke.

During surgeries, doctors use tools that generate surgical smoke, a cloud of tiny particles and chemicals that float in the air. This smoke can be harmful to healthcare workers, causing breathing problems, eye irritation, and even long-term health risks. Many people assume that wearing a mask is enough to stay safe, but is that really the case? Research has shown that surgical smoke contains toxic compounds similar to those found in cigarette smoke, making it a significant occupational hazard for operating room personnel.

The purpose of this study is to evaluate the effectiveness of N95 masks and surgical masks in filtering out surgical smoke. We hypothesize that while N95 masks provide better protection than surgical masks, both would significantly benefit from the use of smoke evacuators, which actively remove harmful particles from the air.

This study took a qualitative approach based on secondary data analysis. This study involved a review of peer-reviewed literature, CDC and NIOSH reports, and professional guidelines from AORN and AST. Data on mask filtration efficiency were analyzed, specifically comparing the performance of N95 and surgical masks in environments with and without smoke evacuators.

Our research indicates that N95 masks work better than surgical masks, filtering out 87–95% of smoke particles. Surgical masks, by comparison, only block about 60–70%, leaving more harmful particles in the air. However, when smoke evacuators are used, the effectiveness of both masks improves significantly, N95 masks can block up to 100% of particles, and surgical masks improve to 70–80%. Despite the clear benefits of smoke evacuation systems, many hospitals do not use them regularly due to unclear policies and lack of awareness.

Unearthing Ancient Life: Biodiversity of the Devonian Community in Vestal, NY

Wyche Auguste
Kristin Polizzotto
College: Kingsborough Community College

Understanding ancient ecosystems helps us see how life has changed over time. My research examines the Devonian fossil assemblage in Vestal, NY (approximately 372-382 million years ago), a time of significant climate change with resultant mass extinction in marine ecosystems. By studying the fossils, I aim to determine the biodiversity in this specific time and place, which has never been studied previously.

I examined fossils previously collected from one locality in Vestal, and attempted to identify each species present. The research suggests this was a typical shallow marine subtropical ecosystem, consisting of crinoids, brachiopods, gastropods, bryozoans, and bivalves.

I used published monographs of Devonian fossil assemblages to identify the species from the Vestal locality. Although it was not possible to identify each specimen to genus and species level, most were identified to family. Characterizing the Vestal fossil community, which has never been published on before, will allow future comparison to other, nearby Devonian fossil assemblages, expanding and clarifying research into the timing and locations of the marine ecosystem response to climate change.

Equity in STEM: Closing the Education Gap Using a 3D-Printed Dual Beam Spectrophotometer

Elizabeth Nobel

Mentor(s): Homar Barcena and Michael Danza

Kingsborough Community College/CUNY

Student success and retainment in STEM fields is highly dependent on relevant experimental exposure in lab settings as well as availability of material resources and funding. The cost-prohibitive nature of modern lab instruments and equipment leave underfunded students and citizen scientists at a critical disadvantage. Accessibility to lab resources is integral in providing underprivileged groups the interactive learning required for future educational and career success. Providing low-cost alternatives to scientific equipment can help bridge this gap.

This project will develop a prototype dual-beam spectrophotometer to illustrate the utility of 3d-printing to promote equity in STEM education. This prototype can be priced at under $2 in parts and dispersed to labs in need of powerful quantitative research instruments. The prototype will be tested using an undergraduate Beer's Law experiment and incremental improvements in the design will permit its wider utility for citizen scientists.

Geo Code – A Tool for Mineral Estimation

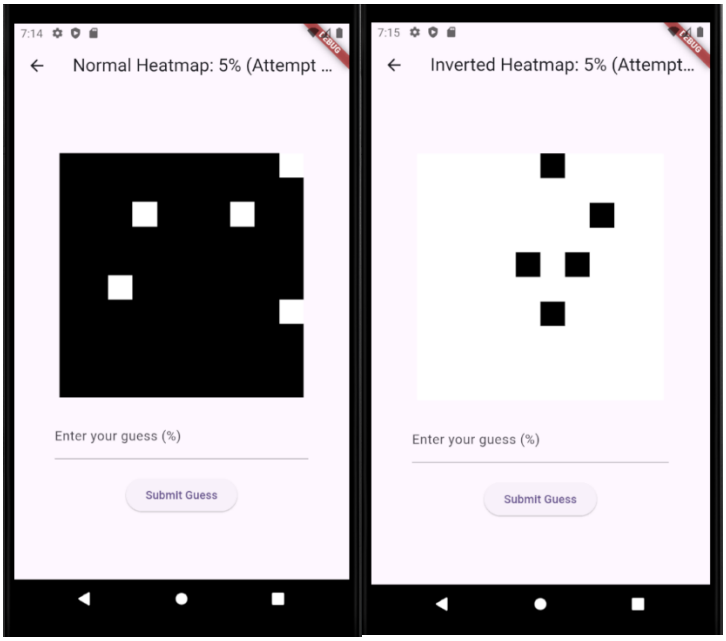
Mireya P. Cortes
Mentor: Steven Jaret
Kingsborough Community College

This project is an interactive tool designed to help geology students and researchers practice estimating mineral percentages in rock samples. It uses black and white patterns to visually represent different concentrations of minerals, giving users a chance to test and improve their visual estimation skills.

The backend of the tool is built in Python using Numpy and Matplotlib to generate heatmaps that show randomized distributions on a 10x10 grid. Each image reflects a specific percentage, from 5% to 100%, making it easier to simulate real world mineral appearances. The backend is fully deployed (in developer mode) to the cloud using Flask and Render, so it's accessible and can be adjusted as needed.

The frontend, currently in progress, is being built with Flutter to support mobile and web use. As development continues, the frontend and backend are being connected to create a smooth, responsive experience for users.

Originally, the project started with static images, but over time shifted to dynamic heatmap generation for more accuracy and flexibility. The goal is to turn this into a game like learning tool (similar to WORDL), that makes studying mineral estimation more engaging, visual, and hands on.



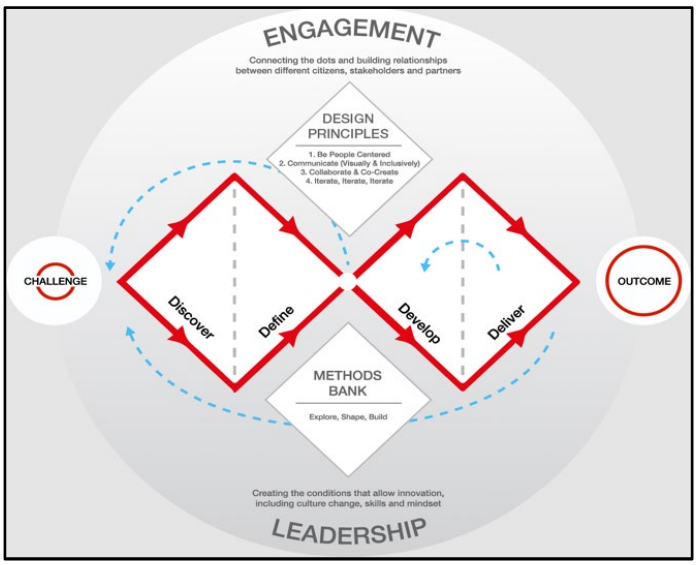
Ux. immersion Research: “Unlocking Deep Insights for Seamless User Experiences”

Tanzeela Jahangir
Mentor: Nathan Cooper
College: Kingsborough Community College

The field of User Experience (UX) design is expanding rapidly; however, many students face difficulties transitioning from classroom learning to real-world practice. This research explores the implementation and impact of a UX Immersion Program that addresses this gap by providing structured, hands-on experiences within the college community. The purpose of the program is to enhance student understanding of UX tools, methods, and practices through interdisciplinary collaboration with faculty, departments, and peers. The hypothesis guiding this work is that campus departments can benefit from UX design contributions, while students gain practical experience that improves their portfolios and employability.

A mixed-methods approach is used to conduct this study. After receiving IRB approval, a set of interview questions was developed to identify potential areas where UX design could be applied. Faculty connections were initiated through events such as the faculty achievement ceremony and outreach via the PTK advisor and UX Design professor. A consent form was created, and interviews—conducted both in-person and via Zoom—were held with representatives from the Student Union and Intercultural Center, Institutional Advancement, and the Departments of Physical Sciences, Biological Sciences, and English department. Additional interviews are scheduled.

Currently, the project is in the data analysis phase, where insights from interviews are being synthesized into user profiles. We will use the UX Design Diamond method, a method given from British design council to develop a solution in the form of a directory connecting design students with departments in need of UX support. Proposed outcomes include digital tools, VR projects, game and instructional design solutions, and experiential research initiatives. The next phase involves matching students from the Art and UX departments with these opportunities, ensuring they are compensated, thus completing a model that links students to meaningful, skill-based internships on campus.



Characterization of Genomic Insertion Sites in Chlamydomonas Mutants

Joshua Johnson & Sigournia Tait
Mentor: Prof. Dr. Dmitry Y. Brogun
Kingsborough Community College

Chlamydomonas reinhardtii are single celled algae that are utilized as reference organisms for studies ranging from genetics to the in-depth analysis of photosynthesis in eukaryotes. The primary goal of our research is to extract and analyze DNA from the *Chlamydomonas reinhardtii* mutants which will enable us to map and characterize the genomic insertion site(s). This objective will be achieved by following a specific protocol that allows us to utilize bioinformatics tools for PCR mapping. The initial result from this experiment suggests that the insertion site will be found on chromosome 13 in the CMJ030 mutant LMJ.RY0402.189391. However, we hypothesize that the insertion site will be located on a different chromosome. Our approach consists of various phases: streak the initial strain provided on agar plates to encourage cell propagation and isolation into single colonies which will allow clear distinction of colonies formed; following that, DNA isolation from the colonies formed; PCR amplification at the loci of interest for both the mutant and wild type through the use of specific primers on agar plates to encourage distinct colony formation; PCR amplification using specific primers to target the loci of interest in both wild-type and mutant strains; cassette-genome junction's amplification; collecting the DNA sequences that are suggestive of the insertion sites through sequencing of the PCR products; and to conclude, we will observe the alignment of these sequences obtained against the reference genome which will help to validate the insertion site.

References

"About Chlamydomonas." *Chlamydomonas Resource Center*, 24 Sept. 2015, www.chlamycollection.org/resources/about-chlamydomonas/.

Ivanova, N., & Zhang, R. (n.d.). *Instructions for characterizing insertion sites by PCR*. https://www.chlamylibrary.org/files/Instructions%20on%20PCRs%20to%20check%20the%20insertion%20site.pdf

The Rise of LMS in Traditional Education: No One Left Behind

Maureen Sam-Okomgboeso
Mentor: Careen Purcell, DNP, RN, CNE
College: Kingsborough Community College

Integrating Learning Management Systems (LMS) into education is essential for modern learning, yet it presents significant challenges, particularly for older adult learners. Often referred to as "digital migrants," these individuals encounter unique challenges when adapting to digital platforms, which can affect their engagement, academic success, and overall learning experience. Research highlights that digital literacy is crucial for success in blended and online learning environments, yet older learners frequently struggle with technology-related anxiety, inadequate institutional support, and insufficient training. Addressing these challenges is critical to ensuring equitable access to education and fostering personal and professional growth.

This study aims to examine the barriers older adult learners (aged 40 and above) encounter in adopting LMS technology and to identify strategies that enhance digital literacy and reduce technology-related anxiety. We hypothesize that limited prior exposure to technology, lack of structured training, unclear instructions, and inadequate support significantly hinder LMS adoption, impacting academic self-efficacy.

Participants are being recruited from programs within a healthcare training institute that actively utilize LMS platforms. Data is being collected through surveys from learners aged 40 and above. Preliminary findings suggest that technology exposure, prior experience, and time constraints interact with training gaps, insufficient support, and limited interactive learning opportunities to influence their LMS experience and academic confidence.

Further data collection is necessary to achieve a sufficient sample size, enabling a more comprehensive analysis. The study’s findings will inform targeted interventions to support older learners, ensuring equitable access to education and preventing digital exclusion in an increasingly technology-driven learning environment.

From Displacement to Empowerment: The Role of Youth Initiatives in Brooklyn's Sudanese Community

Doha Omer
Mentor: Raymond Fong
Kingsborough Community College

The Sudanese population in Brooklyn is sizeable, numbering over a thousand residents. This is far outpacing other New York City boroughs, where populations remain under two hundred (Census, 2020). As with many diasporic communities, the Sudanese population here has created cultural spaces to preserve and reinforce their heritage. These spaces are known as the "Dar Jalia," or simply "Jalia," which translates to "community." One such space, located in Brooklyn's Kensington neighborhood, serves as a central hub for the local Sudanese population. It hosts major cultural events, such as the Sudanese Independence Day celebration, and provides essential services, including funeral arrangements. By offering spaces for cultural practice and education, the Dar Jalia helps community members maintain strong ties to Sudanese traditions and identity. Since the outbreak of war in Sudan in 2023 when fighting began between the Rapid Support Forces (RSF) and the Sudanese Armed Forces (SAF) the importance of the community center has only grown. As more Sudanese immigrants have arrived in Brooklyn displaced by the conflict, the center's membership has expanded rapidly.

My project focuses specifically on the New York State Youth Jalia (NYSYJ), a subgroup within the Dar Jalia that has played a pertinent role in reshaping how the broader community views the center. In interviews with Shayma Ali, leader of the Youth Jalia, and Elfatih Ibrahim, president of the Dar Jalia, both emphasized that youth involvement at the center is unprecedented. Sparked by ongoing efforts to support the community in wake of the war, for the first time the NYSYJ has taken a lead role in organizing and supporting a wide range of events - from the Independence Day celebration to Sudanese Trivia Game Night and the Sudanese Cultural Showcase. Crucially, these events are not only culturally significant but also specifically designed to engage younger community members. One standout initiative, *Week4Sudan*, featured a youth therapy circle led by a Sudanese therapist, as well as a film screening highlighting Sudanese artistic talent and reinforcing national pride.

Through field visits and on-site reporting, a consistent theme emerged: many community members who had previously distanced themselves from the Jalia have returned, now actively volunteering or attending events. Where the Dar Jalia was once dismissed as a space riddled with internal politics and generational divides, the NYSYJ has injected it with new life and purpose. Their work has not only reshaped the perception of the community center but has given it a renewed sense of direction and possibility for the future.

An Easily Fabricated Low-Cost Potentiostat for Measuring Melatonin Concentration: A Comparative Study with a Commercial Potentiostat

Lorenzo Progonati
Mentor(s): Michael Danza and Homar Barcena
Kingsborough Community College

This research presents the development of a low-cost, microcontroller-based potentiostat designed for measuring the concentration of melatonin which enables undergraduate-level students to learn electroanalytical techniques and it helps in studying energy conversion devices like solar cells. The device will be fabricated using readily available electronic components, utilizing my skills in electronics and programming. The purpose of this project is to create a potentiostat system that is not only affordable but also effective in performing electrochemical measurements similar to more expensive commercial potentiostats, such as the potentiostat from Vernier and to give an introduction of electrochemistry. The system will be equipped with a LabVIEW-generated graphical user interface to ensure user-friendliness, providing real-time data display and interaction without requiring extensive programming knowledge. To assess its performance, the device will be compared against a research-grade potentiostat to evaluate its accuracy and reliability in detecting melatonin concentrations. This project aims to make electrochemical analysis more accessible to educational and research environments with limited budgets. The outcomes will provide insights into the feasibility of using low-cost potentiostats in both academic and research settings and contribute to hands-on learning in electrochemistry. Detailed assembly instructions and software guides will be provided as part of the project, ensuring its usability in various educational contexts.

Engineering Solutions for Upcycling Waste E-Vapes

Mykyta Satanovskyy
Mentor(s): Homar Barcena and Michael Danza
Kingsborough Community College

The increasing use of single-use vapes has contributed to the growing issue of electronic waste, particularly through discarded lithium-ion batteries. This research investigates the potential to repurpose these batteries into functional, low-cost portable battery packs. The goal is to reduce e-waste while creating sustainable energy storage solutions. The hypothesis is that a significant portion of lithium-ion cells recovered from disposable vapes retain enough capacity and safety margin to be reused effectively. To test this, 250 disposable vapes were collected and disassembled to isolate lithium-ion cells. Batteries are currently being evaluated using a battery tester to measure remaining capacity and internal resistance, ensuring only viable cells are reused. Additive manufacturing is used to design and 3D print custom casings for safety and usability. Preliminary observations indicate that many of the recovered batteries are physically intact and likely reusable, but full testing is still underway. Next steps include completing battery capacity and safety testing, assembling multiple battery packs, evaluating performance under different load conditions, and finalizing 3D-printed enclosures for safe operation. This study presents a scalable, cost-effective method for repurposing vape batteries and reducing their environmental impact.

Fractured Foundations: Exploring the impact of adverse childhood experiences (ACE'S)

Shaniqua Johnson
Mentor: Dr. Sue-Melissa Burgher
College: Kingsborough Community College

My name is Shaniqua Johnson. Did you know that we often subconsciously seek out our old emotional wounds? While you may not consciously Remember these traumas; your nervous system certainly does. This idea is closely linked to Adverse Childhood Experiences, commonly called ACEs. But what exactly are ACEs? They are traumatic events that occur during childhood, such as losing a loved one, growing up in a single-parent homes, or even those coming from poor urbanization.

Adverse Childhood Experiences (ACEs) are traumatic events occurring during childhood, such as loss, abuse, or neglect. Research reveals a strong link between ACEs and increased risk of chronic diseases, mental health disorders, and social challenges in adulthood.

You may be curious about whether the impact of traumatic experiences continues into adulthood and how it affects your life. This study examines the connection between Adverse Childhood Experiences (ACEs) and their long-term effects on physical and mental health. The hypothesis is that individuals who have experienced multiple ACEs are more likely to develop chronic diseases and mental health disorders in adulthood. Research indicates that ACEs can lead to health risk factors and social challenges. For example, they can contribute to chronic diseases such as heart disease and certain types of cancer, metabolic disorders like obesity, and sleep disturbances. They may also hinder your ability to form new relationships.

Alarmingly, one in eight individuals experiences four or more ACEs. That is 67 percent of the population, and all have at least one ACE. For a self-reflective study on Adverse Childhood Experiences (ACEs), the methodology involves a qualitative exploration of personal experiences. This can be achieved through three primary data collection methods. Firstly, maintain a journal to record thoughts, feelings, and memories related to childhood experiences, reflecting on specific events, people, and environments that may have contributed to ACEs. Secondly, regular, audio recorded self-interviews should be conducted to explore experiences, emotions, and coping mechanisms by asking open-ended questions such as: What were the most challenging childhood experiences? How were these experiences coped with at the time? How have these experiences affected relationships, health, or well-being in adulthood? Thirdly, create a visual life timeline highlighting significant events, relationships, and experiences from childhood to adulthood to identify patterns, themes, and correlations between ACEs and later-life outcomes.

This study establishes the connection between Adverse Childhood Experiences (ACEs) and their significant long-term effects on physical and mental health. Individuals with

multiple ACEs face an increased risk of chronic diseases and mental health disorders in adulthood. Research unequivocally demonstrates that ACEs contribute to health risks and social challenges.

Encountering adversity at a young age can profoundly affect the brain and body. When a child is subjected to prolonged stress, their body generates high levels of stress hormones. This disturbance can interfere with brain maturation, resulting in cognitive functioning and emotional regulation challenges. Additionally, some individuals may develop mental health disorders such as depression, anxiety, or even substance abuse.

Early intervention is crucial in addressing this matter, conveying a public health crisis that warrants greater attention. Constant stress response activation can lead to neurotransmitter imbalances and trigger immune system suppression, making individuals more susceptible to illness. By preventing these adverse experiences in the first place, we could accomplish relatively better outcomes for our overall health. Health and Trauma may not seem like your typical couple, but it is as big as any other health matter we encounter today.

To prevent these health factors from worsening, why not begin at the shaky foundations of a person's life, which forms through allowing early intervention with those who have Childhood Adverse Trauma? Thankyou!

Can the Human Brain's Subconscious State Connect to Physical Objects and Have Applications in Surgical Procedures to Revolutionize Current Technologies?

Name: Niharika Singh
Mentors: Professor Anupam Pradhan & Professor Tyronne Johnson
Kingsborough Community College

The human mind has been a subject of study for centuries due to its vast potential and ability to transcend what was once thought impossible. It has already been established that there is a connection between thoughts and the human body. As the saying goes, "Think positive, and your body can heal itself, just as it heals wounds on its surface."
Our research aims to simplify the complexities of current surgical robotics. The core focus of our work is to investigate the frequencies and vibrations of the human subconscious mind, exploring its deep connection with physical objects. Our goal is to demonstrate that thoughtless state of human mind is not only capable of healing the human body but also possess the power to influence and connect with physical objects.

The purpose of this research is to demonstrate that every individual is inherently connected to specific physical objects based on the unique frequency of their subconscious mind. This understanding will contribute to the development of surgical robots that simplify the current, complex technology.

The human subconscious mind is linked to only specific physical objects through thoughtless state that share the same vibration and frequency.

Research Methods:

1- Interview: Surgical & Medical Reps to collect the technological pain points of the current surgical technology; specifically surgical robots.
2- Blinded Study: to collect data to showcase how the human subconscious mind is connected to the physical objects.

We are in the process to get an IRB approval for the research data.

Comparison of Protein Content of Fish available in NY Markets

William Smith
Mentor: Farshad Tamari, Ph.D.
College: Kingsborough Community College

Proteins are an important class of macromolecules. Proteins play extremely important functions in the body including functioning as transport systems for cells, hormone receptor, and enzymes; and can even be used an indicator for potential cellular death. In humans, proteins are composed of approximately 20 amino acids, with 9 amino acids being essential. Essential amino acids are those that are not synthesized by the human body and therefore, must be obtained through one's diet. Fish are a great source of protein and therefore, essential amino acids, but the protein content of non-packaged fish is often not available nor displayed in markets. Moreover, to the best of our knowledge, no studies have compared protein content of farmed vs wild-caught fish of the same species, although at least one study suggested that farmed fish possess more fat compared to the alternative.

The goal of this study is to quantify protein content of fish found in a NY market, and if possible (available), to compare farmed vs wild-caught fish. We hypothesize that 1. Different species of fish will possess different protein content; and 2. Farmed fish will not possess different protein quantities compared to wild-caught fish of the same species. To complete this study, we secured 16 samples from a local Brooklyn fish market, and performed preliminary experiments to optimized parameters that would yield the best results such as quantity of fish sample (in mg) used for extractions. The preliminary experiments showed that a standard Bradford assay, using between 10 and 20 mg of fish, with 1µL of each sample used for spectrophotometry with $\lambda = 595$ nm yielded optimal results. Between 14 and 18 mg of each sample was extracted in 100 µL of PBS, followed by centrifugation at 2500 rpm for 5 minutes. 1 µL (1/4 dilution) of the supernatant from each sample was used with three triplicates for this investigation. Our investigation shows that Scottish Salmon has the highest protein content (3.77 ± 0.41 µg/µL) accounting for 25.12% of the weight of the sample used; with the lowest protein content belonging to the Chilean Sea Bass (0.45 ± 0.07 µg/µL) accounting for 3.01% of the weight of the sample used. We are currently continuing our statistical analyses. Initial data analysis used MS Excel; more advanced statistical analyses being performed using SPSS (IBM).

Beyond Crowns: Species Identification of Crinoids through Columnal Fossils

Lorasia Swift
Mentor: Kristin Polizzotto
College: Kingsborough Community College

This research investigates whether different crinoid species can be distinguished based on their columnal or stem fossils, using specimen samples from Vestal, a small town in South Central New York. This marks the first time these fossils have been utilized for species diversity research, adding new geographic and geological context to crinoid studies. Crinoids, an ancient class of marine echinoderms, are typically identified by crown morphology; however, the abundance of columnal remains in the fossil record suggests these structures may contain species-specific characteristics useful for identification in the absence of crowns. Employing morphological methods, we analyze columnal fossils from Vestal to assess patterns and variations within and between species. Results indicate that specific columnal features, such as shape, ornamentation, and dimensions, may reliably differentiate species, though some overlap exists. These findings contribute to a more nuanced taxonomy and enable more accurate palaeoecological interpretations based on incomplete fossil records.

Bioinformatics Comparison of the Niemann-Pick Type C1 gene and gene product in Mammalian Species: A Proteomics Approach

Anastasiia Tarasova
Mentor: Farshad Tamari, Ph.D.
College: Kingsborough Community College

Niemann Pick Type C1 (NPC1) is an autosomal recessive genetic disorder, and results in hepatosplenomegaly, neurodegeneration and ultimately death at a relatively young age. Currently, NPC1 investigations use a mouse model, however, it is unclear whether a better animal model exists for studies that focus on this disease. For example, other candidate species may include rat, chimpanzee, pig, and rabbits, all of which possess an *NPC1* ortholog.

The goal of this study is to determine which of the above species' orthologs shows the most DNA and/or protein homology to the human *NPC1* gene, potentially making it a better candidate for studies that can translate to therapeutics in humans. We hypothesized that more evolutionary related mammalian species will show the most sequence homology to the human *NPC1* gene. To achieve our goal, we downloaded DNA and protein sequences for all mammalian *NPC1* orthologs, as well as that of the chicken as an outgroup, and completed a sequences comparison to determine the degree of homology/difference between the orthologs. We used multiple-alignment with the Jalview and UGENE Unipro as bioinformatics software to complete the investigation. Our study indicated that there is too much sequence variability in the DNA to provide us with meaningful results. However, the protein sequence comparisons were useful. The highest protein sequence identity was observed between the human and chimpanzee sequences at 97.7%, as expected. Also as expected, the lowest protein sequence identity was observed between the human and chicken protein sequences at 78.4%. Our results appear to support our hypothesis that the more closely related species will have closer protein sequence identity for NPC1.

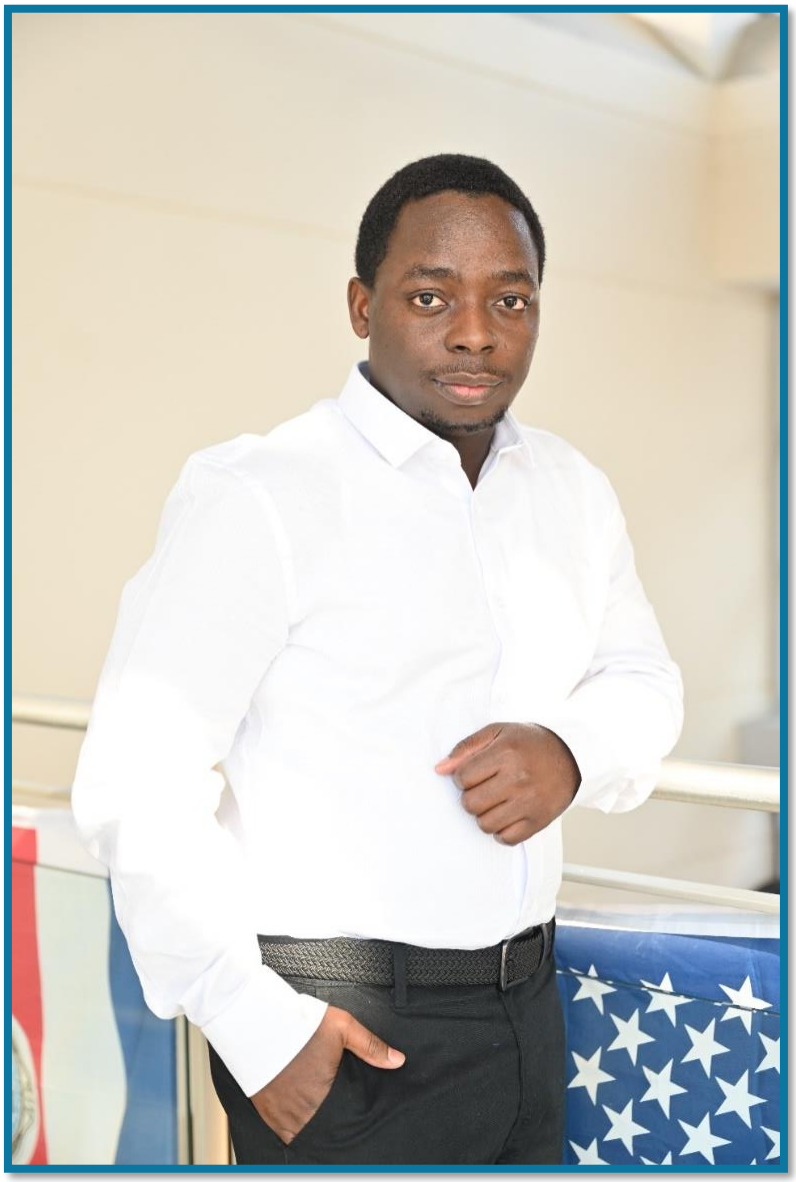
Nutrigenomics: Analyses of Genetic Variations to Personalize Diets for Optimal Weight Management

Sukhrob Ulugmuratov
Roberto Mariani, PhD
College: Kingsborough Community College

The goal of these studies is to optimize health outcomes by using DNA tests to better understand personal diet, lifestyle, and supplement requirements. The role of genetic differences plays an essential role to weight maintenance and obesity prevention. It could provide insight into which diet type (low carbohydrate, low fat, or Mediterranean diet) would be most suitable for everyone according to their unique genetic makeup. From a clinical value point of view analyzing a genetic profile could be an appreciated tool for individuals that are trying to lose weight or had experienced weight loss resistance in the past. Individuals that tried many different diet types sometime were not successful or could not optimize their macronutrient distribution to improve weight management outcomes. 20 gene variations are assessed that affect weight management. These genes are involved in regulation of energy expenditure**,** appetite, sugar addiction and overeating**,** taste sensitivity**,** insulin sensitivity**,** fat metabolism**,** and carbohydrate responsiveness. Understanding weight management is important because the majority (90% to 95%) of overweight and obesity is polygenic and multifactorial in nature. The current status of research in gene-diet interaction is trying to explain some of the complexities in translating genetics findings into practical dietary advice. DNA diet provides a novel approach to understand key areas for improved and sustainable weight loss outcomes. Looking at genetic results of several individuals one can categorize the impact of those mutations as no impact, low Impact, moderate impact, and high impact. Findings from a detailed genetic analysis indicate that personalized nutrition could have a huge promise to offer better health for individuals. It could be an improved strategy to manage weight and to reduce obesity-related diseases. Recent findings point out that the genes *FTO, MC4R*, and *RETN* may modulate body weight through appetite, insulin sensitivity, and response to specific nutritional intervention. These factors, along with epigenetic modulation and microbiome interaction, suggest the future of personalized or precision nutrition strategies in effectively managing and preventing obesity.

SCHOLAR PROFILES

Faruq Anjorin, *Surgical Technology*



As a Surgical Technology major at Kingsborough Community College, I have developed a strong foundation in both the academic and clinical aspects of healthcare. My coursework has equipped me with essential knowledge of anatomy, aseptic technique, surgical instrumentation, and perioperative procedures. Beyond the classroom, I have gained hands-on clinical experience at Lenox Hill Hospital, where I assist in surgical procedures spanning multiple specialties, including orthopedics, neurosurgery, and otolaryngology. These experiences have offered a front-row view into the precision, collaboration, and critical thinking required in the operating room, and they have solidified my passion for surgical care and patient advocacy.

Why I Participated in CRSP:

The CRSP program has been a pivotal experience in my academic journey. It has challenged me to think critically, ask meaningful questions, and engage in research that extends beyond the scope of traditional coursework. Under the guidance of a dedicated faculty mentor, I have been able to explore scientific inquiry in greater depth, enhance my problem-solving abilities, and connect research with real-world applications. The opportunity to actively participate in research has given me a broader perspective on healthcare and a deeper appreciation for the role of innovation and evidence-based practice in improving patient outcomes.

Honors, Scholarships, and Involvement at KBCC:

At KBCC, I am an active member of the Honors Community and Phi Theta Kappa (PTK). I have been recognized on the Dean's List for academic excellence and continue to pursue opportunities for leadership and growth. I am also a participant in the NASA H2O program, where I engage in interdisciplinary learning focused on environmental science and space exploration. As part of this initiative, I am preparing to present my research at the upcoming Lunar and Planetary Science Conference in Houston an exciting opportunity to contribute to a broader scientific dialogue.

Future Academic Plans:

After graduating from KBCC, I plan to transfer to the City College of New York to continue my studies in a program that will prepare me for graduate-level education and expand my scientific and clinical knowledge base.

Career Goals:

My long-term goal is to become a Physician Assistant (PA), combining my passion for medicine, my surgical background, and my desire to make a meaningful difference in patients' lives. The training I have received at KBCC, both in the classroom and the operating room has instilled in me the confidence, compassion, and skillset necessary to succeed in this next phase of my journey. I look forward to building on this foundation as I continue to grow as a healthcare professional and scholar.

Solomon Asotie, *Surgical Technology*

Why Participate in CRSP?

The CUNY Research Scholars Program (CRSP) provides an invaluable opportunity to develop my research skills while working on projects that can positively impact patient outcomes. I joined the program to gain hands-on experience in a professional academic setting and to explore meaningful solutions to challenges faced by surgical technologists and healthcare professionals.

My current research investigates the health implications of surgical smoke—a topic I became deeply passionate about after firsthand exposure while working as a nursing assistant in the operating room at NYU Langone and Lutheran Medical Center. Through this project, I hope to raise awareness about surgical smoke as an occupational hazard and advocate for better protective measures in the OR.

Path to Kingsborough

I moved to the United States from Nigeria in 2016 to pursue a pilot training program, but life redirected my path. When my father became seriously ill, I had to take on new responsibilities to support my family. I began working as a housekeeper and later transitioned into patient care, working my way up to a nursing assistant role in the operating room. That experience inspired me to pursue a career in surgical technology. Kingsborough Community

College stood out for its strong healthcare programs, hands-on clinical training, and supportive academic environment.

KCC Achievements and Recognitions

- Dean's List: Earned a spot on the Dean's List in Spring 2024 for academic excellence.
- 100 Strong Scholarship: Recipient of a $2,310 scholarship funded by Barnes & Noble Inc. Founder and Chairman Leonard Riggio.
- Student Spotlight: Selected as Kingsborough's *Student Spotlight* for the week of April 4th, 2024. My story was featured across the college's official social media channels, highlighting my academic journey, research, and commitment to healthcare.
- Research Presentations: Presented findings through the CRSP program on the health risks of surgical smoke exposure.

Future Education

While I'm still exploring the next steps, I plan to work as a surgical technologist after graduation to gain two years of hands-on experience. This will give me time to determine my long-term academic path. I'm strongly considering pursuing a Bachelor of Science in Nursing (BSN) and eventually becoming a nurse anesthesia provider.

Anticipated Career

I aspire to become a Certified Registered Nurse Anesthetist (CRNA)—a role that would allow me to blend my surgical expertise with my passion for patient safety and comfort in the operating room. Though the future is still unfolding, I'm committed to growing in the field of healthcare and making a meaningful difference.

Wyche Auguste, *Accounting*

Throughout my college journey, I have faced numerous challenges that pushed me to work harder and strive for success. In 2024, I transferred to Kingsborough with a fresh mindset and a determination to get closer to achieving my goals. I learned about the CRSP program through my accounting professor and saw it as an opportunity to enhance my resume, challenge myself academically, and further develop my intellectual skills.

Since transferring to KCC, I have achieved significant milestones, including earning my first 3.0 GPA and currently maintaining a 3.5 GPA. I am proud to be on track to graduate in June. While at Kingsborough, I have focused on academic excellence and personal growth, preparing myself for the next chapter of my journey. I aspire to become an accountant at one of the Big 4 firms, a goal that motivates me every day.

As I plan for the future, I am preparing to transfer to a four-year institution, though I am still considering where I will continue my studies. I am confident that the experiences I have gained through CRSP and my time at Kingsborough are equipping me with the tools I need to achieve greatness. These opportunities have not only shaped my academic and professional aspirations but also reinforced my commitment to excellence.

Tareq Awawdeh, *Biology*

My story is one of transformation and determination. After starting at CUNY College of Staten Island with a GPA below 1.0, I made the life-changing decision to reset my academic path. Since transferring to KCC, I have achieved a remarkable turnaround, now maintaining a GPA above 3.0 – demonstrating my renewed commitment to academic excellence.

Through KCC's CRSP program, I am gaining crucial research experience and presentation skills that will be vital for my future medical career. These competencies in conducting research and creating scientific posters are essential stepping stones toward my goal of becoming an Orthopedic Spine Surgeon.

As I prepare to transfer to Brooklyn College to pursue my Bachelor of Science in Biology, I am focused on maintaining this upward trajectory. My ultimate goal of completing a combined MD/MBA program reflects my holistic approach to understanding both the medical and business aspects of healthcare delivery. My academic transformation at KCC has proven that with dedication and the right support, significant challenges can be overcome on the path to success in medicine.

Mireya Cortes, *Computer Science*

Mireya Cortes is a computer science major at Kingsborough Community College with a strong passion for cybersecurity and problem-solving. She is currently an intern serving as a Technology Specialist for the Department of Education, where she provides support and solutions across an entire school building.

Mireya participated in the H2O program, was selected for the prestigious Cyber Sentinel Challenge, and successfully completed NASA's NCAS Mission 1 and 2, where she served as the Computer Engineer for a simulated lunar mission.

Although she has not yet finalized her future college plans, Mireya is fully committed to continuing her journey in the cybersecurity field.

Her experience in the CRSP program has been deeply impactful, not only strengthening her technical skills and confidence, but also allowing her to be a role model for her three children. CRSP has shown her that it's never too late to pursue big dreams, and that with dedication and purpose, meaningful growth is always possible.

Tanzeela Jahangir, *Graphic Design-Ux. Design*

Benefits of CRSP or Why did you choose to participate in CRSP?

- The User Experience (UX) Immersion Research initiative would empower students and departments by bridging the gap between education and career opportunities.
- Through hands-on research, we explore the intersection of user experience (UX) design and real-world applications, equipping students with the skills and knowledge necessary to excel in the rapidly growing field of UX.
- Ux. immersion research aim to highlight the breadth and depth of innovative research being conducted at Kingsborough Community College (KCC)
- By promoting collaboration across departments and aligning academic research with industry demands, we aim to position KCC students as leaders in the field of UX design and research.

Reason:

As a Ux. designer, I completed several projects with KCC which includes building Road Map to Success, 3D VR project, Aqua Fresh and Sustainability project and NASA Space Apps Global Hackathon. Success of these projects has cemented my interest in standing as a leader to create a bridge between talented students of KCC and job opportunities in Ux. design field.

KCC Accolades, Scholarships, Clubs, etc.

- Completed Presidential Honors credits
- Recipient of Dean's List scholarship (Fall 2024).
- Kaplan Leadership Program Finalist (Fall 2024).

- Selected into the Vassar Transfer Explorer Program (Summer 2024).
- Dean's List (Spring, Fall 2023) (Spring 2024)
- ATD Student Success member (Spring 2023- Spring 2024)
- Recipient of PTK Coca-Cola Gold Scholarship (Spring 2024)
- Recipient of Gallery Award for Ux. Design at Annual Students Art Awards at KAM (Spring 2024).
- Recipient of Gladys Brooks Foundation Scholarship Endowment for Student Leadership and Academic Excellence (Spring 2024).
- PTK Honors Society member (Fall 2023).
- Member of National Society of Leadership and Success (Spring 2024).
- Student Organizer of NASA Space Apps Global Hackathon. (Fall 2024).
- Research Assistant with K-Core (Fall 2024).
- Secretary at Ceramics Club (Fall 2024).
- Treasurer at PTK Honors Society (Spring, Fall 2024).
- Lead the PTK chapter project "Aqua Fresh and Sustainability" (Spring-Fall 2024). Took lead in PTK project to make "Road Map to Success" (Spring 2023-Spring 2024)
- Completed a Project with New York Institute of Technology (NYIT) on 3D designing in Virtual Reality (VR).
- Designed posters and attended panel discussions with NYC Homelessness Project. (Winter 2023)
- Working with NYC Climate Justice Hub on an eco-bikes project. (Fall 2024)
- Working on Open Educational Resources for Makers Lab (Winter 2024)
- Semi-finalist for Jack Kent Cooke Scholarship. (Winter 2025)
- Recipient of PTK Hites Scholarship for academic excellence and leadership. (Winter 2025)

Future College as well as the other colleges that you were accepted to:

- SUNY Binghamton (Accepted)
- CUNY Brook, City Tech, Brooklyn and SPS (Accepted)
- Waiting for other colleges.

Future Major: UX Design and Environmental studies with a minor in Entrepreneurship.

Anticipated Career: Entrepreneur, UX Designer.

Joshua Johnson, *Liberal Arts*

Benefits of CRSP: Working on a project I am passionate about. I get direct mentorship and gain new skills I can apply to other research projects or a career in the future.

Future College: I plan to continue to apply for the KCC nursing program, or to pursue a bachelor's degree, future college is undecided.

Future Major: Nursing or Biology

Anticipated Career: Nursing or Research Coordinator

Elizabeth Nobel, *Engineering*

A second-year student who plans to explore robotics and mechanical engineering when attending her next university. Originally educated in the social sciences, Liz joined CRSP with the hopes of honing her interdisciplinary research skills while combining the hard and soft sciences to find solutions not just to science-based problems, but societally based problems as well. As an Honors' student and participant in the Equity in STEM and H2O programs, Liz seeks to increase herprofessional experience as a product researcher in the toy industry.

Maureen Sam-Okomgboeso, *Nursing*

I hold a bachelor's degree in Computer Science, as well as a master's degree in Operations and Supply Chain Management. Currently, I am pursuing a degree in Liberal Arts as a stepping stone to transitioning into nursing. My goal is to obtain a Bachelor of Nursing after completing my current degree, or alternatively, to pursue a Ph.D. in Bioinformatics.

The CRSP program provides an excellent opportunity to enhance my research experience and allows me to gain a deeper understanding of the intricacies of research.

Doha Omer, *Journalism/Print Media*

KCC Accolades/Clubs:

- Founder of African Student Union
- Dean's List recipient Spring 2024, Fall 2023
- Vice President of Legislative Affairs
- Scepter Editor-In-Chief
- USS Delegate
- Phi Theta Kappa Vice President
- Honors Program Student

Future Major: Journalism & African Studies

Anticipated Career: Investigative Journalist

Benefits of CRSP/Why I chose to participate: Undergraduate research opportunities are few and far between, so once I heard about CRSP I was excited to take advantage of the experience. Through working with my mentor to do a project on the Brooklyn Dar Jalia, I have gained valuable insight on anthropological research and was also able to use this learning to pursue a journalistic project that I am passionate about.

Lorenzo Progonati, *Engineering Science*

I chose to participate in CRSP because it enables me to interact with other pears, share ideas and learn more about science. I'm very excited for this experience as it not only provides me with such valuable learning but also opens doors to great prospects for my future. I'm confident that the skills and knowledge I'll gain through CRSP will play a pivotal role in achieving my academic and professional goals. The CRSP program has been and will be very beneficial for me as I continue my studies in the field of Electrical Technology at City Tech. So far, CRSP has helped me gather all the right tools and information needed for my project which focuses on designing a low-cost potentiostat to measure the concentration of melatonin. During this research, I will be able to develop hands-on skills while I am working with the Arduino Uno computer controller. All these factors will prepare me for a smooth transition towards my bachelor's degree.

Mykyta Satanovskyy, *Engineering Science*

I chose to be in CRSP because being able to write a research paper in my undergrad years in college is a great opportunity to challenge myself. My critical thinking skills, research abilities and communication skills were strengthened throughout this experience.
Finalist in CUNY Clash, KBCC Deans list, Treasurer of KBCC Engineering club

The future college that I was accepted into is City College for the Mechanical engineering Program.

Anticipated Career is an Energy Engineer or Manufacturing Engineer.

Shaniqua Johnson Simmons, *Education*

Niharika Singh, *Surgical Technology*

Benefits of CRSP or Why did you choose to participate in CRSP?

To give the gift of metaphysical knowledge to the surgical world to bring advancement in surgical robotics.

KCC Accolades, Scholarships, Clubs, etc.

The following achievements are related to what I am currently doing in CRSP as they carry the education that I provide to the world:

- Marquis' Who's Who Honoree 2025
- Inducted in Phi Theta Kappa International Honors Society 2025
- "Top 100 Influential Femmes 2024" – Fox Story India
- "Top 10 Inspiring Entrepreneurs to Watch out for in 2024" – MSN, Powered by Microsoft News
- "Top 20 Life Coaches to Look Out for in 2024" – The NYC Journal
- "Hall of Fame 2024" Honoree – Passion Vista | Special Collectors' Edition
- Featured in " International Business Weekly"
- Official Contributor to Passion Vista Magazine | Unified Brainz Media

Anticipated Career: Surgical Technologist _ Researcher_ Educator

William Smith, *Biology*

I chose to join CRSP to be the foundation of my future academic goals. I wanted to immerse myself in a research project to prepare me for a PhD program.

Awards: I was awarded the Dean's List every semester at KCC and a finalist in the Kaplan Leadership Program scholarship.

Future College: I am attending SUNY Stony Brook this spring semester, majoring in psychology. I am pursuing a PhD in Clinical Psychology, allowing me to practice clinical work and staying affiliated with academia and doing research.

Lorasia Swift, *Accounting*

I am currently pursuing an Associates' degree in Accounting and am proud to be a participant in the CUNY Research Scholars Program. I chose to join CRSP because it offers a unique and valuable opportunity to engage in hands-on scientific research, particularly within the field of marine biology, an area of personal interest. CRSP has allowed me to broaden my perspective, develop my critical thinking and research skills, and enrich my overall educational journey.

Future College: SUNY Empire State University **Future Major:** Accounting/MBA

Anticipated Career: Certified Public Accountant (CPA)

Sigournia Tait, *Political Science*

I am currently a Political Science major at John Jay. I chose to participate in the CRSP program because I love biology, and I knew that this program would help me to explore different aspects of biology through research. I plan to work in a lab during my academic and professional career. With the help of this program, I am gaining hands-on experience in research techniques that I will apply anywhere along with developing my critical thinking skills.

Throughout my time at KCC I was a part of the Dean's List, a recipient of the Gold Student Leadership Award, a guest panel speaker for "Here Are Our Stories: International Students" hosted by the International Student Affairs Office, Vice President then President of the International Student Union, member of the Caribbean Student Association and Dance Club. I was also a recipient of the Southpole Scholarship, and I received $1000. At John Jay College of Criminal Justice, I plan to gain my bachelor's in Political Science and pursue internships.

I am currently undecided about my career path, but I do know that I will eventually choose a career that combines my love for both medicine and politics.

Anastasiia Tarasova, *Biology*

I am happy to participate in the CRSP. Participating in CRSP has allowed me to connect with a diverse network of mentors, build essential research skills, and gain hands-on experience in my field of study. As an immediate future step, I will attend Hunter college to pursue my Bachelor's degree. My long-term goal is to pursue a career in dentistry.

Sukhrob Ulugmuratov, *Surgical Technology*

Benefits of CRSP:

To explore how genetics influences individual responses to diet and nutrition, and how this knowledge can improve health outcomes. CRSP offers a unique chance to dive deeper into the field of nutrigenetics, combining my passion for biology with the desire to contribute to personalized healthcare. Through my research, I aim to help create more effective, customized dietary strategies that can aid in weight management and disease prevention.

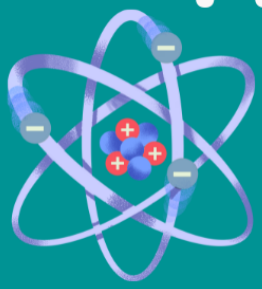
KCC Accolades/Scholarships:

- Dean's List recipient
- Honors Program Student
- Ponce Scholarship Recipient
- Riggio Scholarship Recipient
- CRSP Researcher

Future Major: Nursing

Anticipated Career:
Surgeon, APRN

MENTOR PROFILES



Dr. Dmitry Brogun

Dmitry Y. Brogun is a molecular evolutionary biologist. He holds a Master of Arts in ethology from Brooklyn College. He earned his Master of Philosophy and Doctor of Philosophy in Molecular, Cellular, and Developmental Genetics from the Graduate Center (CUNY). He received his graduate research training from CUNY and Michigan State University and postdoctoral research training after earning his doctoral degree from CUNY and Rockefeller University. His research interests include molecular evolutionary biology and algology, which is the study of algae. Dr. Brogun received an NSF (National Science Foundation) grant that allowed him to implement and pilot an online course where students performed pathogen surveillance in public metagenomic datasets collaboratively with individuals from CUNY, SDSU, NIH, NLM, and NCBI. Professor Brogun has been educating students in general biology, microbiology, anatomy, and physiology at CUNY since 2007. At Kingsborough Community College, he has served as a Metagenomics Discovery Program (MDC) Principal Investigator and student mentor in the CUNY Research Scholars Program (CRSP) and Collegiate Science and Technology Entry Program (CSTEP).

Ms. Sue-Melissa Burgher

Sue Burgher is a hospital administrator, adjunct, trainer, and ECE consultant. Her background is in Public Health Nursing, Early Childhood Education, Community health, and doctoral studies in curriculum and instruction. She started her career at Kingsborough Community College in 2005. Additionally, she teaches workshops mandated for professional licenses, day care center operations, and culture. She teaches in the Behavioral Science department of Kingsborough College. She also trains hospital staff to ensure quality of care and ensure that every staff member incorporates ICARE values into their practice. She attended Kingsborough College, Medgar Evers College, York College, Stonybrook, and Liberty University. Professor Burgher research effects on Culture and trauma in children and how support can change the outcome. She also believes in cultures being conducive for humanity and growth.

Dr. Mary Dawson,

Associate Provost and Dean of Health Programs

Prof. Nate Cooper

Mr. Michael Danza

Michael Victor Danza is the Kingsborough STEM Lab Instructor & Lab Tech who specializes in 3D Design & 3D Printing. As well, he is the Founder of The One Brooklyn Engineering Pipeline which connects the member schools (elementary, middle, high) into one coherent educational pipeline with the purpose of nurturing The Next Generation of American Engineers!

Dr. Suri Duitch,
KCC Interim President

Mr. Raymond Fong

Raymond Fong earned his M.A. in Anthropology and Education from Teachers College, Columbia University, and a B.A. in East Asian Studies from the University of Arizona. Fong is an Anthropology lecturer at Kingsborough Community College. His ongoing research focuses on the development of satellite Chinatowns in New York City, with a particular interest in how migration patterns shape these communities. His broader research interests include minority student achievement, community dynamics, and the cultural exchange of imports and exports. His recent publications include “Beneath the Surface: Academic and Practical Realities” and “Asian American Desert Community in Tucson.”

Dr. Steven Jaret

Steven Jaret is geologist and planetary scientist originally from Atlanta, GA. He has a B.S in Geology from the University of Tennessee, Knoxville, an M.A. in Earth and Planetary Science from Harvard University, and a Ph.D. in geology from Stony Brook University (2017). Before coming to Kingsborough Community College in 2018, Steven was a postdoctoral research and teaching fellow at the American Museum of Natural History.

His research topics center in 2 areas of geology: i) meteorites and meteorite impact craters on Earth and ii) the geology of New York City and southern New England. Since 2018, he has been the lead investigator on a series of projects understanding the geologic history of rocks in all five boroughs, and has published a new geology field guide of Central Park. He also is the principal investigator on two NASA-funded grants to understand how rocks and minerals change during large-scale meteorite collisions.

Prof. Tyrone Johnson

Dr. Roberto Mariani

Professor Mariani is a molecular biologist. He received his Ph.D. in Molecular

Biology from the University of Rome “Sapienza.” During his career he worked in both academic and pharmaceutical environments and published several scientific peer-reviewed articles. He joined the Department of Biological Sciences at Kingsborough Community College first as Adjunct in 2018 and then as a full time Assistant Professor of Biology in 2019. At KBCC he currently teaches Anatomy and Physiology, General Biology, and Microbiology for Health and Diseases. Previously, he taught as Adjunct Professor, General Biology, Molecular Cell Biology at CUNY City Tech and Molecular Biology at St. Francis College in Brooklyn, NY. He was a postdoctoral fellow at Cold Spring Harbor Laboratory, NY where he had an extensive training in virology, molecular biology, and developed animal models for diseases. He then joined as a Research Scientist, the Aaron Diamond AIDS Research Center (ADARC), The Rockefeller University, NYC, NY, an organization completely dedicated to HIV research. Later he was appointed Staff Scientist at The Salk Institute, La Jolla, CA where he supervised and directed programs focused on innate immunity response to HIV infection. He then moved to the biotechnology industry as Senior Scientist and Consultant where he managed and developed programs for antivirals, diabetes, and antibodies therapeutics to treat asthma. Back in New York City, he joined a startup biotechnology company as Director where he was responsible to supervise and develop several viral vaccines programs, this collaboration led to a recent publication in Nature Communication. His scientific activities are mostly focused on virology and to understand molecular mechanisms related to diseases. His extensive activities in several fields of Biology gave him the opportunity to coordinate the laboratory sections of different Biology courses.

Dr. Kristin Polizzotto

Dr. Polizzotto is a paleobiologist—a paleontologist who focuses on the biology of extinct organisms. She earned a B.S. in Zoology from Brigham Young University (1995) and a Ph.D. in Zoology from Cornell University (2003). While she would love to be an expert in zoo science, zoology really just means the study of the biology of animals (rather than plants or other organisms). She joined the Department of Biological Sciences at Kingsborough Community College in 2004, and had no idea at the time what a stroke of exceptionally good fortune this would turn out to be. Dr. Polizzotto teaches general biology (focusing on evolutionary biology, ecology, and organismal biology) and marine biology. Previous research has focused on 1) evolutionary change in gastropods; 2) soft-tissue anatomy of ammonoids (an extinct relative of squid); and 3) population variation in ammonoids. Current projects focus on the biodiversity of shallow subtropical marine ecosystems from the upper Devonian (372-382 million years ago) of south-central New York State.

Dr. Anupam Pradhan

Anupam Pradhan, Ph.D. is an Assistant Professor in the Department of Biology at City University of York's Kingsborough Community College (KCC), Brooklyn since 2017. Dr. Pradhan is a molecular biologist, parasitologist and a microbiologist by training. At KCC Dr. Pradhan teaches Microbiology of Health and Diseases (BIO051) and Anatomy and Physiology I (BIO11). Prior to joining KCC Dr. Pradhan served as Research Associate in the infectious disease and drug discovery group at University of South Florida (USF), College of Public Health (2007-2015) and The University of Mississippi, College of Pharmacy (2004-2007). Dr. Pradhan has worked with world's top experts on malaria and other parasitic diseases. Dr Pradhan received a B.S. and M.S. in Zoology from Cotton University, India (formerly Cotton College) in 1994 and 1997 respectively. Dr. Pradhan did his dissertation work in Toxicology for which he received Ph.D. in Zoology in 2004 from Indian Institute of Toxicology Research (IITR), and the C.S.J.M. University, India jointly.

Dr. Pradhan has made over 20 scholarly contributions in highly acclaimed peer-reviewed research journals like Nature, PNAS and Scientific Reports (RI score=789.6; h-index = 14; Jan 2025). His research interests are: 1. survey of pathogenic microbes in produce from local farmer's market and, 2. smoking induced neurodevelopmental changes in cord blood cells. Dr. Pradhan believes in high impact teaching practices and he implements authentic research in lab sections of his microbiology class.

Dr. Careen Purcell

Careen Purcell is an Assistant Professor of Nursing at Kingsborough Community College. She holds a Doctor of Nursing Practice from Chamberlain University and is a Certified Academic Nurse Educator from the National League of Nursing. Her research interests are healthcare disparities and Chronic disease management. She is the author of Implementing Trauma-Informed Principles in Nursing Education: An Appeal for Action. She enjoys traveling with family and jogging.

KCC Winter Presentation, January 2025

Ms. Roxanne West

Roxanne West began her journey with KCC's Department of Allied Health, Mental Health, and Behavioral Sciences as an adjunct clinical instructor in the surgical technology program in spring 2024. This fall, she will expand her role by teaching a practicum course, transitioning to a full-time lecturer position.

A New York native with Nicaraguan roots, Roxanne comes from a family deeply rooted in healthcare. From a young age, she aspired to make a difference in the medical field. "As a child, I dreamed of becoming a pediatrician and working with children, a passion that has evolved into a focus on nursing but eventually found the path leading to surgical technology." She holds an associate degree in surgical technology from Kingsborough Community College and a bachelor's degree in health communications from New York City College of Technology. "One of my greatest achievements is earning my bachelor's degree while balancing full-time work, family responsibilities, and caring for my mother until her passing, all while maintaining a 3.7 GPA."

With over a decade of experience as a certified surgical technologist, Roxanne has worked at Wyckoff Heights Medical Center, where she performed a range of general, GYN, and podiatric surgeries. She has also been part of the spine team at NYU Hospital for Joint Disease and spent the past eight years at Northwell Health (Manhattan Eye Ear Throat Hospital). She joined the orthopedic hand team at Northwell, co-founded the DEI Committee, and served as its chairperson. She received the Rising Star Award in 2023 and was nominated for the President's Award for leadership in May 2024.

Roxanne discovered her passion for teaching while at Northwell, where she was asked to precept students and new employees. "It was incredibly rewarding to see students eager to learn from me, which sparked my desire to pursue a career in education."

Outside of teaching and surgery, Roxanne enjoys playing and watching softball and cherishing time with family and friends. Returning to teach at the college where she trained feels like a full-circle moment for her. "It's both nostalgic and inspiring to be able to contribute to the education of future surgical technologists. I look forward to sharing my expertise and helping students build the confidence they need to thrive in their careers."

Dr. Farshad Tamari, CUNY Research Scholars Program Director

Professor Tamari is a molecular geneticist. He received his Master's (M.Sc.), and Ph.D. from the Department of Biology at York University in Toronto, Ontario, Canada. He completed a three-year post-doctoral fellowship in the Department of Human Genetics and Genomic Sciences at the Mount Sinai School of Medicine in New York and joined the Department of Biological Sciences at Kingsborough Community College in 2009. He teaches Anatomy and Physiology (Bio 11), Introduction to Biology (Bio 13 and 14), Genetics (Bio 59), and Biostatistics (Bio/Mat 91) and leads grant-funded biotechnology/bioinformatics workshops for students as well.

Currently, Professor Tamari's research revolves around four main areas: 1. Technical aspects of DNA extraction and its optimization in plants, 2. The molecular aspects of reproductive organ development in *Petunia hybrida* and *Primula vulgaris*, 3. Bioinformatics studies of specific genes of interest, and 4. Pedagogical studies to determine best classroom/lab practices.

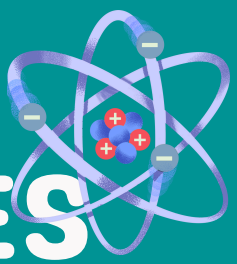
Frances Samuel, CUNY Research Scholars Program Administrator

Frances Samuel is a native New Yorker. Born in Brooklyn, she attended Richard R. Green High School of Teaching since she knew she wanted to become a teacher from an incredibly young age. Throughout her education, Frances excelled in mathematics and social studies. While pursuing her Education degree at SUNY Oswego, Frances learned about C-STEP and decided to become an active member. As a C-STEP participant, Frances presented at The Sagamore on Lake annual C-STEP Conference. Upon graduating from SUNY Oswego with her Master's degree in Education with focus in Mathematics, she worked for multiple years as a Mathematics Educator in middle and high schools in Brooklyn, New York.

During the Fall of 2018, Frances began working at Kingsborough Community College as the Assistant for the CUNY (City University of New York) Research Scholars and Perkins Grant Programs. Frances is an avid proponent of higher education and assisting students in being able to discover their personal pathways towards success. In February 2021, she assumed the role of KCC's Service-Learning Advisor for the Career Development and Experiential Learning Center and other roles including Dean's List Coordinator. Currently, Frances's roles at Kingsborough are the Perkins CTE Assistant Grant Manager and CUNY Research Scholars Program Administrator.

Scholars Q&A at Winter Presentation

KCC CURC REPRESENTATIVES



The following students will represent Kingsborough Community College at the CUNY Undergraduate Research Celebration on Friday May 23, 2025 at John Jay College.

Faruq Anjorin

Tareq Awawdeh

Mireya Cortes

Joshua Johnson

Shaniqua Johnson

Maureen Sam-Okomgboeso

Niharika Singh

William Smith

Sigournia Tait

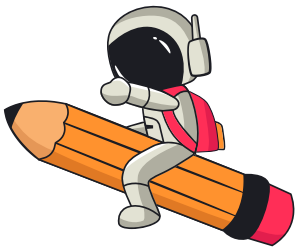
Anastassia Tarasova

Sukhrob Ulugmuratov

KCC CUNY RESEARCH SCHOLARS 2025 COHORT

Kingsborough Community College

CUNY Research Scholars Program



ABOUT CRSP

To encourage undergraduate participation in authentic scientific research and to increase persistence in STEM (Science, Technology, Engineering, and Math) disciplines, CUNY is funding mentored laboratory experiences for CUNY community college students over a one-year period.

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