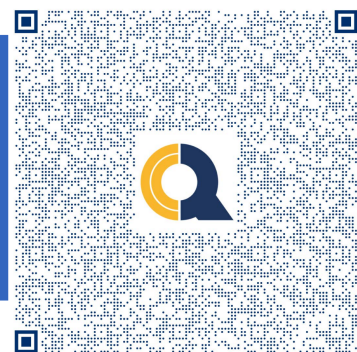


# The 8th Annual UNDERGRADUATE RESEARCH & CREATIVE WORKS DAY



Showcasing student projects  
across disciplines

**FRIDAY, DECEMBER 1, 2023**









December 1, 2023

Welcome to Queensborough Community College's 8<sup>th</sup> Annual Undergraduate Research and Creative Works Day! This event is a showcase of *faculty-mentored undergraduate research and creative works efforts across the disciplines* at the college. The conference provides undergraduate students an opportunity to present and showcase the results of their hard work in various fields.

In addition to providing the experience of presenting research posters and performances, the conference is an opportunity to learn about research and creative works projects carried out by other students and faculty across the disciplines on our QCC campus. It also aims to provide information on the various programs and opportunities on campus that provide funding and support for students and faculty to engage in such projects. We are delighted to share *74 presentations*, showcasing the work of *133 students mentored by 44 faculty members* over the past year. We gratefully acknowledge the efforts of faculty mentors, who have prioritized engaging students in research and creative works activities during this time. We also acknowledge the student participants, who despite many obstacles, persevered to bring us this exciting event. We would also like to thank *the CUNY Research Scholars Program at Queensborough Community College* and *the Student Government Association* for generously supporting the organization of this event.

The college is proud of the hard work and dedication of our faculty mentors and students participating in undergraduate research and creative works activities, and we are pleased to offer each of you the opportunity to participate in this excellent learning experience. Students, we hope that you enjoy sharing the results of your hard work with the campus community. We also hope that your accomplishments will serve as an inspiration to other students seeking out similar opportunities and experiences on the campus.

To every student, congratulations on your achievements!

Sincerely,

***Dr. Sarbani Ghoshal & Dr. Roumen Vragov***

Co-chairs of the QCC Research Committee

***Dr. Regina Sullivan***, Associate Professor, QCC CRSP Director Biological Sciences & Geology Department

***Dr. Zhou Zhou***, Assistant Professor, Chemistry Department

***Dr. Paul Sideris***, Associate Professor, Chemistry Department

***Dr. Andrew Bulawa***, Associate Professor, Mathematics & Computer Science

***Dr. Matthew Lau***, Associate Professor, English Department

***Prof. Rezan Akpinar***, Associate Professor, Health, Physical Education & Dance Department

***Prof. Jennifer Chabra***, Research Compliance Specialist, OAA

***Christina Denny***, Program Coordinator, QCC CRSP

## **Undergraduate Research and Creative Works Day**

**Queensborough Community College  
Bayside, NY**

**Friday, December 1, 2023**

<b>10:30–11:30 am</b>	<b>Poster Set-up</b>	<b>Student Union Lobby</b>
<b>11:30–12:00 am</b>	<b>Registration &amp; Lunch</b>	<b>Student Union Lobby</b>
<b>12:00 pm</b>	<b>Welcoming Remarks</b>	<b>Student Union Lobby</b>
	<b>Dr. Sarbani Ghoshal &amp; Dr Roumen Vragov</b>	<b>Research Committee Co-Chairs</b>
	<b>Dr. Christine Mangino</b>	<b>President, Queensborough Community College</b>
	<b>Dr. Phyllis Curtis-Tweed</b>	<b>Provost and Vice President of the Office of Academic Affairs</b>
	<b>Dr. Michael Pullin</b>	<b>Dean for Academic Initiatives in the Office of Academic Affairs</b>
	<b>Dr. Ron Nerio</b>	<b>Research Programs Director, CUNY Office of Research</b>
<b>12:25 pm</b>	<b>Group Photo</b>	<b>Stairs between Library &amp; Admin. Buildings</b>
<b>12:35 – 2:50 pm</b>	<b>Poster and Recorded Presentations</b>	<b>Student Union Lobby</b>
	<b>Panel Discussions</b>	<b>Oakland Dining Room</b>
<b>3:00 – 5:00 pm</b>	<b>Movie Screening: The Five Demands</b>	<b>Oakland Dining Hall</b>

## Undergraduate Research and Creative Works Day Planning Committee



**Rezan Apkinar**  
Health, Physical  
Education, and Dance



**Andrew Bulawa**  
Mathematics &  
Computer Science



**Jennifer Chabra**  
Research Compliance  
Specialist, OAA



**Christina Denny**  
Program Coordinator,  
CRSP



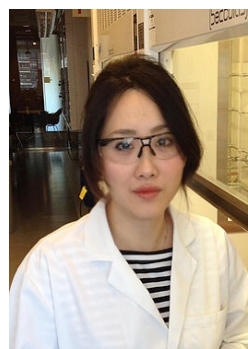
**Matthew Lau**  
English



**Paul Sideris**  
Chemistry



**Regina Sullivan**  
QCC CRSP Director



**Zhou Zhou**  
Chemistry



**Sarbani Ghoshal**  
Biological Sciences &  
Geology  
RC Co-Chair



**Roumen Vragov**  
Business  
RC Co-Chair

# Queensborough's Research Committee

## Faculty Representatives by Department

Professor Moni Chauhan, Academic Affairs

Professor Kat Griefen, Art and Design Department

Professor Sarbani Ghoshal, Biological Sciences and Geology Department

Professor Roumen Vragov, Business Department

Professor Paul Sideris, Chemistry Department

Professor Kahlil Garner, Communication, Theatre, & Media Production Department

Professor Guozhen An, Engineering Technology Department

Professor Matthew Lau, English Department

Professor Carolina Chaves-O'Flynn, Foreign Language & Literature Department

Professor Rezan Akpinar, Health, Physical Education and Dance Department

Professor Stephanie Rost, History Department

Ms. Marisa Hollywood, Kupferberg Holocaust Center

Professor Neera Mohess, Library Department

Professor Andrew Bulawa, Mathematics and Computer Science Department

Professor Svyetlana Bukvich-Nichols, Music Department

Professor Georgina Colalillo, Nursing Department

Professor Jillian Bellovary, Physics Department

Professor Jody Resko, Social Sciences Department

Ms. Christine Spicknell, Office of Grants/Sponsored Programs

Professor Anissa Moody, Human Research Protection Program Coordinator

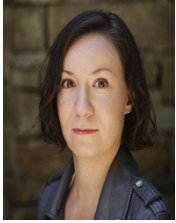
Professor Jennifer Chabra, Research Compliance Specialist

Professor Heather Huggins, Undergraduate Research, High Impact Practice Coordinator

Professor Urszula Golebiewska, Undergraduate Research, High Impact Practice Coordinator



## 2023 Research Committee Members



**Kat Griefen**  
ART & DESIGN



**Sarbani Ghoshal**  
BIOLOGICAL SCIENCES  
& GEOLOGY



**Roumen Vragov**  
BUSINESS



**Paul Sideris**  
CHEMISTRY



**Kahlil Garner**  
COMMUNICATION,  
THEATRE, & MEDIA  
PRODUCTION



**Guozhen An**  
ENGINEERING  
TECHNOLOGY



**Matthew Lau**  
ENGLISH



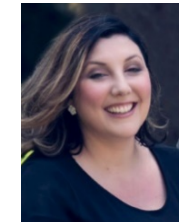
**Carolina Chaves  
O'Flynn**  
FOREIGN LANGUAGE &  
LITERATURE



**Rezan Akpinar**  
HEALTH, PHYSICAL  
EDUCATION, &  
DANCE



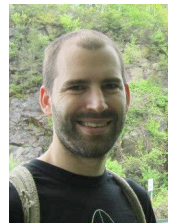
**Stephanie Rost**  
HISTORY



**Marisa Hollywood**  
KUPFERBERG  
HOLOCAUST CTR.



**Neera Mohess**  
LIBRARY



**Andrew Bulawa**  
MATH & COMPUTER  
SCIENCE



**Svetlana Bukvich-  
Nichols**  
MUSIC



**Georgina Colalillo**  
NURSING



**Jillian Bellovary**  
PHYSICS



**Jody Resko**  
SOCIAL SCIENCES



**Moni Chauhan**  
Research Integrity  
Officer, OAA



**Christine Spicknell**  
GRANTS/ SPONSORED  
PROGRAMS



**Anissa Moody**  
HUMAN RESEARCH  
PROTECTION  
PROGRAM



**Jennifer Chabra**  
RESEARCH  
COMPLIANCE  
SPECIALIST



**Urszula Golebiewska**  
UNDERGRADUATE  
RESEARCH, HIP  
COORDINATOR



**Heather Huggins**  
COMMUNICATION,  
THEATRE, & MEDIA  
PRODUCTION/ UR-HIP

## High-Impact Practices at Queensborough



Dr. Meg Tarafdar Interim Director, Center for Excellence in Teaching and Learning

**Undergraduate Research** is one of the six high-impact practices (HIPs) offered at Queensborough. The HIPs are teaching strategies that promote deeper learning and greater persistence. emphasizes process and reflection. The [Council for Undergraduate Research](#) defines undergraduate research as: a mentored investigation or creative inquiry conducted by undergraduates that seeks to make a scholarly or artistic contribution to knowledge. UR-HIP faculty participants design an undergraduate research activity and reflection. These activities may be implemented through research in the classroom, one-to-one / small group mentorship, or an internship. UR–HIP Coordinators: Urszula Golebiewska, Professor, Biological Sciences & Geology and Heather Huggins, Associate Professor, Communication, Theatre, & Media Production.

**Academic Service-Learning (ASL)** involves class assignments that take students' work out into the community, encouraging civic engagement and reflective practices that promote learning. Faculty development in design and implementation occurs throughout the semester. ASL Coordinator: Mark Ulrich, Assistant Professor, Business.

**The Common Read (CIE)** is a common intellectual experience that promotes integrative learning across the curriculum through multi-disciplinary approaches to a common text. Participating faculty members are able to incorporate the text in a way that aligns with their individual interests and disciplines. Students have the opportunity to participate in cross- disciplinary events that encourage increased social and academic engagement while supporting the learning that takes place in the classroom. CIE Coordinator: Barbara Rome, Associate Professor, Nursing.

**Global & Diversity Learning (GDL)** provides a framework for exploring multiple perspectives on viewing the interdependent world. Students participate in experiences that promote an awareness of global issues, engagement with diverse perspectives, and transformative approaches towards learning. GDL Coordinator: Meg Tarafdar, Associate Professor, English.

**Students Working in Interdisciplinary Groups (SWIG)**: The SWIG project is a virtual learning community that allows students from two or more courses to create a shared student-centered online space, in which they can share their work with others, offer audience response and constructive feedback. SWIG Coordinator: Rezan Akpinar, Associate Professor, HPED.

**Writing Intensive Courses (WI)** courses are designed to improve students' critical thinking, engagement with and mastery of course content, and writing ability through all academic disciplines. Two writing-intensive courses are required to graduate. Specific Writing Intensive Certification training is needed. WI Coordinators: Melissa Dennihy, Associate Professor., English; Monica Rossi-Miller, Lecturer, Foreign Lang & Lit.

## The Office of Grants/Sponsored Programs at QCC



Development Grants Director: Christine Spicknell  
Assistant Director and Grants Writer: Dr. James Harnsberger  
Administrative Coordinator: SueAne Solares-Loza  
CUNY Office Assistant: Yasmin Jewnandan

Location: Humanities, Room 336  
Telephone: (718) 631-6357



The Office of Grants/Sponsored Programs (OGSP) provides grant development services and training and grant management support to faculty and staff to promote the successful acquisition and oversight of research and institutional sponsored awards. The OGSP develops and implements pre- and post-award grant training for new and existing principal investigators/project directors. Development is provided through workshops, trainings, dissemination of materials, a website, and via one-on-one interactions.

The OGSP supports grant directors in managing awards by providing assistance with human resources, purchasing, contract development, sub-awards, financial forecasting, reporting, monitoring and award close-out. The OGSP coordinates with OAA in promoting research integrity and compliance.

The OGSP is responsible for Sponsored Programs Administration and is accessible to assist faculty, principal investigators or project directors with any sponsored research or administrative program requirements.



The OGSP reports to the President, Provost or their designee; at QCC, the designee is the Dean for Academic Initiatives, Dr. Michael Pullin. The OGSP is available for:

- Reviewing proposals submitted to assure compliance with University policy. The Grants Office also reviews budgets to verify that all appropriate charges are included in the cost calculations.
- In cooperation with The Research Foundation, assisting the PI with the negotiation and acceptance of grant awards;
- Assisting the PI with the administration of research and sponsored programs from inception through close-out;
- In cooperation with the University, assuring compliance with sponsor's policies, e.g., fiscal, property, intellectual property, human and animal subjects;
- In cooperation with the University, assuring compliance with the policies and procedures of the Research Foundation;
- In cooperation with the University and The Research Foundation, maintaining official records concerning sponsored projects including official grant and contract files;
- Assisting faculty and department/school staff in the preparation of proposals and other administrative aspects of sponsored projects as needed; and
- Training of faculty and administrative staff in the policies, procedures and practices of the University, College or School and sponsors.

**Some of QCC's Grant Funded Programs Providing Undergraduate Research Experiences:**

- Research Experiences for Undergraduates (REU) funded by National Science Foundation, Project Directors: Prof. Todd Holden.
- "Bridges to the Baccalaureate" program funded by National Institutes of Health, Project Director Prof. Patricia Schneider.
- "Collaborative Research: Of Mice and Monsters" funded by National Science Foundation, Project Director Prof. Jillian Bellovary.
- "Developing Data Analysis Skills of Community College Students using Cloud Technologies (DDASCT)" funded by National Science Foundation, Project Directors Prof. Monica Trujillo and Prof. Esma Yildirim.
- "Tuning in to the echoes of Black Hole Seeds" funded by National Science Foundation, Project Director Prof. Jillian Bellovary.
- "Using Space Technology to Engage and Inspire Students to Explore (SpaceTech EngInE)" funded by National Aeronautics and Space Administration, Project Director Prof. Chantale Damas.
- Science and Technology Entry Program (STEP) funded by New York State Department of Education, Project Director Yicel Nota-Latif.
- Collegiate Science and Technology Entry Program (CSTEP) funded by New York State Department of Education, Project Director Marie Francesca Berrouet.
- Ionic Liquids funded by STREM Chemicals, Project Director Prof. Sharon Lall-Ramnarine.
- College Now & STEM Research Academy funded by the Pinkerton and Simons Foundations, Project Director Mary Anne Meyer.
- BioPREP: Biology Partnership funded by National Institutes of Health, Project Director Prof. Nidhi Gadura.
- Institutional Partnership to Create Successful Student Transition in Smart Energy and Materials funded by National Science Foundation, Project Director David Sarno.
- Developing next Generation Radiation Safety Professionals funded by The Department of Energy, NNSA, Project Directors Prof. Sharon Lall-Ramnarine and Prof. Paul Sideris.

**QCC Undergraduate Research Programs**  
**Bridges to the Baccalaureate Program**  
**Research Initiative to Maximize Science Skills**



Program Director: Dr. Patricia Schneider,  
Email: [pschneider@qcc.cuny.edu](mailto:pschneider@qcc.cuny.edu)

Location: QCC Biology Department, Room M-208  
Telephone: 718-631-6335

In 2002, the Bridges to the Baccalaureate Program was established at Queensborough Community College with funding from the National Institutes of Health. The Bridges program is a partnership between QCC, Queens College and City College created to improve QCC's ability to train and graduate under-represented (UR) science students, and to facilitate their transfer to baccalaureate programs in biomedicine or behavioral science. A hallmark of the program is a strong focus on authentic research carried out under the mentorship of faculty in biology, chemistry, math, physics and behavioral science. These mentors serve as role models and provide students with encouragement, career advisement and visibility within the academic community. Scientific communication skills are explicitly taught, and each student gives an oral presentation and submits a written report at the final seminar.

In the past five years, twenty students were listed as co-authors on peer reviewed research publications. Students have received 23 national and 30 regional research awards. A comprehensive system of academic and psychosocial support is provided to participants and interactions with the senior colleges facilitate transfer. Overall, 88% of participants have transferred and 81% have graduated from BA/BS programs in science or biomedicine. Ninety students pursued postgraduate degrees. To date, 9 PhD, 5 MD, 4 PharmD and 53 Master's degrees have been awarded to Bridges students.

## **Eligibility**

- Full time student planning to transfer to a senior college and major in science or biomedicine
- US citizen or US permanent resident
- GPA of at least 2.7 (B-)
- Member of a group identified by NIH as underrepresented in biomedicine:
  - Black, Hispanic, Native American, US Pacific Islander
  - Students of any ethnicity with a disability or from a disadvantaged financial or educational background
- Completion of 1 semester of science (2 preferred)

## **Support**

Fifteen students per year participate in the program. All participants receive a salary so they can focus on their research project: \$150 to \$300/week. during the academic year and/or \$5250 for ten-week full time summer program. Students making good progress may continue for up to two-years.

## **2021 - 2022 STUDENT HIGHLIGHTS**

Vanessa Almonte received a PhD in biomedicine from Albert Einstein College of Medicine, Daniel Nova received a PhD in Chemistry from Princeton University and Viviana Torres was awarded a DDS from SUNY Stony Brook. Leandro Pimentel Marcelino graduated last year with a BS in biochemistry from City College and received NSF REPS award for post baccalaureate research. This project year, he received CUNY's prestigious Jonas E. Salk Award and entered the Tri-Institutional (Cornell, Rockefeller, Memorial Sloan Kettering) PhD Program in Chemical Biology.

## Collegiate Science and Technology Entry Program (CSTEP)



Program Director: Ms. Marie-Francesca Berrouet

Email: [MBerrouet@qcc.cuny.edu](mailto:MBerrouet@qcc.cuny.edu)

Ms. Berrouët came to the U.S. from Haiti in 2002 and started working at QCC that same year. Over the years, she has served College students in various capacities. Ms. Berrouët is also a proud QCC / CUNY alumna and continue to passionately seek, obtain and encourage her students to participate in experiences that enhance their skills, knowledge, and expand their network while keeping them engaged in their community. (Internship, Research, Volunteer). Since 2011, she has been the Project Director of CSTEP. The Collegiate Science and Technology Entry Program (CSTEP) is a New York State grant funded initiative designed to foster academic excellence for historically under-represented or economically disadvantaged full-time college students majoring in the STEM (Science Technology Engineering Math) fields and licensed professions (i.e. Health related careers, Accounting, Law, Psychology, Massage Therapy, Social Work, etc.). CSTEP is a small program, serving 130 students per academic year, however, it has a high retention rate and its students have great things to say about their experience. Ms. Berrouët and her team continue to recruit students and continue to offer guidance and support to all students. They are always happy to assist.

Thank you for your referrals. <https://www.qcc.cuny.edu/cStep/>



## Fall 2023 Student Engagement at the KHC

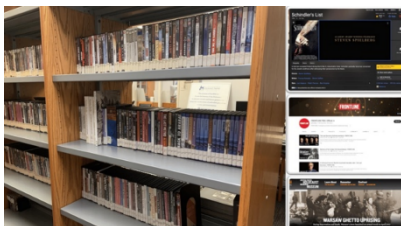


The Harriet and Kenneth Kupferberg Holocaust Center (KHC) was established in 1983 as one of the first research archives devoted to the Holocaust on the East Coast. Our mission is to use the lessons of the Holocaust to educate current and future generations about the ramifications of prejudice, racism, and stereotyping. In doing so,

we teach and empower citizens to become agents of positive social change in their lives and in their communities. Our permanent exhibition tells the story of the Holocaust in Germany, from pre-World War II through to the end of the war. Our latest virtual exhibit, *The Concentration Camps: Inside the Nazi System of Incarceration and Genocide*, surveys the scope and brutality of this system, underscoring the horrific consequences of intolerance, racism, and authoritarianism. These extensive networks of ghettos, transit camps, women's camps, forced labor camps, and extermination camps, to name a few, played a central role in the Holocaust—the annihilation of six million Jews—as well as the mass murder of millions more Poles, Roma and Sinti, homosexuals, people with disabilities, social outcasts, Jehovah's Witnesses, as well as other political and religious opponents. For more information, visit: <http://khc.qcc.cuny.edu/camps/>.

### Summer/Fall 2023 Intern Projects

**Visitor Services & Research:** For Fall 2023 the Center continues our newest internship where interns serve as greeters and help students and other visitors navigate the galleries. Interns introduce the exhibits, distribute exhibit catalogs from our archive, and provide general administrative support. The interns also each choose a past exhibit, an artifact on display, or a Holocaust survivor testimony to review and research.



**Curatorial/Collections Research:** Our Summer and Fall interns completed high-level research on our Nazi Concentration Camps exhibit and in our archive. Work ranged from historical image/artifact research to a comprehensive reorganization of the KHC book and film library.

**The KHC offers paid administrative, curatorial, research, and project-based internships during the fall, spring, and summer semesters. For more information about the Center, please visit our website: <http://khc.qcc.cuny.edu/> or email us at [KHC@qcc.cuny.edu](mailto:KHC@qcc.cuny.edu).**

## The CUNY Research Scholars Program (CRSP) 2023-24 Cohort



Program Directors: Provost Phyllis Curtis-Tweed and Dr. Regina Sullivan  
[phyllis.curtis-tweed@qcc.cuny.edu](mailto:phyllis.curtis-tweed@qcc.cuny.edu); [rsullivan@qcc.cuny.edu](mailto:rsullivan@qcc.cuny.edu)  
CRSP Programming Coordinator: Ms. Christina Denny  
[cdenny@qcc.cuny.edu](mailto:cdenny@qcc.cuny.edu)  
Location: Office of Academic Affairs, Room A-507

The CUNY Research Scholars Program provides funding to facilitate laboratory experiences for associate degree students over a one-year period. The goal of the program is to encourage undergraduate participation in authentic research and to increase persistence in STEM and Social Science disciplines. Students receive a \$5,000 stipend and approximately 300 hours of mentoring from faculty members and participate in structured activities on campus, including sessions on laboratory safety, library research, public speaking, and poster preparation. Each year, the program culminates in a symposium where students display and present their work to peers and mentors. *The CUNY Research Scholars Program at QCC currently supports 21 students and 20 faculty mentors.*

### Eligibility

Associate degree students with at any stage in their academic career can participate. Students must have at least a 2.7 GPA and commit to being part of the program for one full academic year. Graduating and transfer students who leave the college may take a partial scholarship for work completed, providing that they prepare a poster of the research conducted for presentation by the student or faculty mentor at the CUNY Research Scholars Program symposium at the end of the funding year.

### Support

Students receive a \$5000 stipend for approximately 300 hours of research activities. The program also provides compensation for faculty mentors in the amount of \$1000 per student mentee. This amount is for one year of the program. Faculty commit to working with the student for the entire academic year.

### Applications

Applications open in August every year and close in mid-September.  
For more information, visit: <http://www.qcc.cuny.edu/ur/crsp.html>

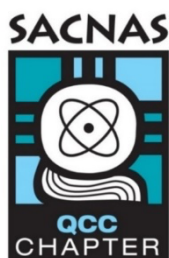
# The Society for the Advancement of Chicanos/Hispanics and Native Americans in Science

## SACNAS

### SACNAS QCC Chapter Advisors

Dr. Maria Mercedes Franco, Math and Computer Science, [mfranco@qcc.cuny.edu](mailto:mfranco@qcc.cuny.edu)

Dr. Joan Petersen, Biological Sciences and Geology, [jpetersen@qcc.cuny.edu](mailto:jpetersen@qcc.cuny.edu)



The SACNAS QCC chapter was established in Spring 2016 as the second and only active chapter in the state of NY, and the second chapter established at a community college. QCC SACNAS offers a forum to come together for academic, social, and service activities. The chapter has a strong presence on campus that is dedicated to raising awareness about issues of importance to our diverse community. Any student or faculty member is welcome to join the QCC Chapter.

### SACNAS is Multidisciplinary and Multicultural

QCC Students and Faculty at the 2022 SACNAS Diversity in STEM National Conference



**At SACNAS we are changing the face of science together**



## SACNAS QCC Chapter Highlights

Travel Scholarships to attend the 2023 and 2022 SACNAS *Diversity in STEM* National Conference:

- James Hardat, Chapter President 2021-2022, was fully funded by SACNAS to attend the 2023 conference. In 2022, Mr. Hardat was fully funded to participate in C.O.L.O.R. (Chapter Officer Leadership October Retreat), a pre-conference student leadership event and to attend the conference.
- Simona Mitec, Chapter Vice President 2021-2022, received a SACNAS Travel Scholarship to attend the conference.
- Dr. Maria Mercedes Franco, Chapter Co-Advisor, received a MMW Travel Scholarship to attend the Modern Math Workshop (pre-conference) and the conference in 2023.
- Dr. Bianca Sosnovski, Chapter Advisor 2021-2022, received a MMW Travel Scholarship to attend the Modern Math Workshop (pre-conference) and the conference in 2022.

Presentations at the 2022 SACNAS *Diversity in STEM* National Conference:

- “Early Undergraduate Research Experiences for Community College Students Promote DEI in STEM,” and all-QCC panel with Dr. Yusuf Danisman, Dr. Maria Mercedes Franco (Chapter Co-advisor 2022-2023), Dr. Simran Kaur, Dr. Alison Mello, and Dr. Joan Petersen (Chapter Co-Advisor 2022-2023)
- “Supportive Research Mentoring in Computational Sciences for 1st and 2nd Year College Students” Panel with Dr. Maria Mercedes Franco and two faculty members from 2 non-CUNY institutions
- “Un Paso Pa'lante: Putting Hispanic/Latinx STEM Doctoral Students on the Path to Teach at Community Colleges” Panel with Dr. Dugwon Seo (Chapter Co-Advisor 2021-2022) and five faculty/researchers from other CUNY and non-CUNY institutions.

Other SACNAS Awards:

- Dr. Maria Mercedes Franco was selected to participate (on a full scholarship from SACNAS) in the 2022 Linton-Poodry SACNAS Leadership Institute.

SACNAS has helped defray the cost of 58 individual trips (27 students/alumni, 31 faculty/professionals) to the national conference made by members of the QCC community since 2012. The savings to travelers and the college is estimated to be \$49,000. Beyond the conference, SACNAS offers intensive support to its members via web-based services, leadership development, student scholarships, internships, and fellowships.

## Achieving **TRUE DIVERSITY** in STEM

SACNAS is an inclusive organization dedicated to achieving **True Diversity**. True diversity means the field (including leadership positions) reflects the demographics of the population. Thus, since its founding 49 years ago, SACNAS has been working to “make sure that those most underrepresented in STEM have the support they need to obtain advanced degrees, careers, and positions of leadership.” Since 2018, new funding allocations have been made to fund travel awards for *all* students regardless of citizenship or residency status, an effort particularly helpful for DREAMers. All other SACNAS programs for students have been unrestricted since their inception. SACNAS also strives to secure unrestricted funding for postdocs and professionals.

# NSF Research Experience for Undergraduates (REU) National Science Foundation supported Research Opportunities in Physics, Bio-physics and Astronomy for Community College Students



Program Director: Dr. Todd Holden

E-mail: [THolden@qcc.cuny.edu](mailto:THolden@qcc.cuny.edu)

Location: Physics

Department Telephone:

718-631-6366

Undergraduate participation in physics research at Queensborough Community College has been part of the college's academic program for over 20 years. Sponsors have included NIH RIMS, LSAMP, NASA NSF and PSC-CUNY. The college is offering Research Experiences for Undergraduates this summer supported by the National Science Foundation. Students will have the opportunity to participate in current research projects in physics, bio-physics or astronomy and perform independent research on a wide range of projects that aim to broaden their understanding of science and involve them in the acquisition, analysis and presentation of experimental data.

## Research Program Objectives:

- To introduce students to a variety of current issues in science.
- To define and discuss useful methods.
- To provide instruction in experimental design and efficacy.
- To have meaningful faculty-student discussions on the experimental results.
- To assist with the production of a presentation of each student's work at a conference.
- To inform students of opportunities at four-year colleges and summer initiatives.

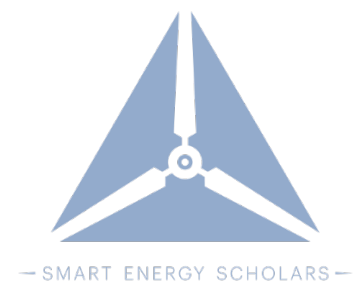
## Program Details

The program is a 10 week-long research program that runs from June 6, 2022 to August 12, 2022. This program provides an opportunity to do interesting research in a wide variety of topics with individual mentors. In addition, basic research skills are highlighted including responsible conduct in research, statistics, data handling and presentation skills. Each student will have an opportunity to present their summer research at a symposium at Queensborough and will be encouraged to present and publish their results in other forums.

## Benefits

- A \$6000 stipend
- Travel support to and from campus
- An option to continue paid research with your mentor throughout the academic year
- A rich research experience and collaborative environment

# QCC NSF S-STEM Scholars Program in Smart Energy



Program Director: Dr. David Sarno

E-mail: [dsarno@qcc.cuny.edu](mailto:dsarno@qcc.cuny.edu)

Location: Chemistry Department

Telephone: 718-631-6058

<http://www.qcc.cuny.edu/s-stem/index.html>

The National Science Foundation has awarded a five-year Scholarship in Science, Technology, Engineering, and Mathematics (S-STEM) grant to QCC and its partners at Binghamton University (BU) and Broome Community College (BCC). Its goal is to support academically talented QCC students who demonstrate financial need by providing scholarships to complete their associate's degrees in a variety of STEM disciplines. They will also gain knowledge and experience in smart energy fields that will enable a future of alternative energy sources and energy efficient technologies. In addition, they will practice vital "soft skills" such as writing, making presentations, networking, and persistence. While at QCC, S-STEM students will participate in a weekly online seminar with their peers at BU and BCC. They will also receive advisement from faculty mentors and support from their peers and colleagues at the partner institutions.

**This is the final year of the program, but new students will be recruited for spring 2024!**

## Program Features

- Up to \$10,000 per academic year towards cost-of-attendance
- Opportunities for mentored research at QCC
- Mentoring and advising by smart energy faculty at BU
- Weekly online seminar and cohort-building events with Smart Energy Scholars from all campuses

## Eligibility

- Full-time enrollment at QCC
- US citizenship or permanent residency
- Minimum 3.0 GPA
- Demonstration of financial need based on completed and filed FAFSA
- Working towards an A.S. degree in STEM (pre-Health and related majors are not supported by this program)

Priority is given to students who are

- in chemistry, physics, or engineering A.S. programs
- planning transfer to a bachelor's degree program in a STEM field
- on track to graduate from QCC by the end of spring 2024

## QCC NSF S-STEM Smart Energy Scholars Program Highlights 2023



Smart Energy Scholars alumni, pictured left to right: Isabela Velasquez Gutierrez, Xiaofang Yu, Edison Mera, James Pitarresi (PI-BU), Harpreet Singh, Helen Park, David Sarno (program director), Danial Mokhtari Sharghi, Miaolan Chen Weng, Devani Mahabir, Mariia Ihnatiuk, and Ho Martin Yuen

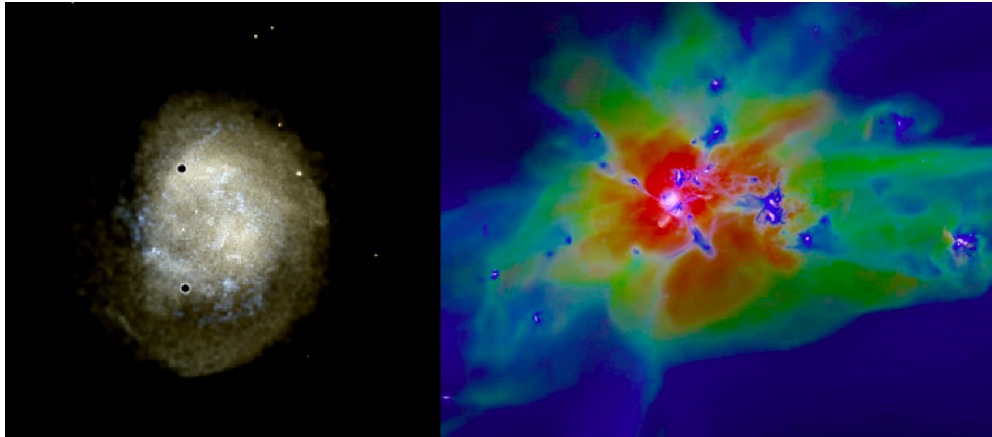
### Highlights:

- 22 students have participated since spring 2018. Ten students have transferred to BU to pursue their bachelor's degrees.
- Many of the Smart Energy Scholars participate in undergraduate research at QCC and are also supported by the CUNY Research Scholars Program.
- Mariia Ihnatiuk participated in the 2023 Using Cloud Technologies to Develop Data Analysis Skills Summer Bootcamp (UCTDDAS) and earned an AWS Cloud Practitioner Certificate.
- Ho Martin Yuen participated in the 2022 Brookhaven National Laboratory Community College Internship Program
- Miaolan Chen Weng participated in the 2021 CUNY Summer Undergraduate Research Program
- Harpreet Singh participated in a 2019 NSF-REU at City College and was a Presentation Winner at the 2020 Annual CRSP Symposium.
- Danial Mokhtari Sharghi participated in a 2019 NSF-REU at QCC.
- Edison Mera participated in a summer 2018 NSF-REU program at Binghamton University.
- Isabela Velasquez Gutierrez won a Best Poster award at the 2018 Annual CRSP Symposium.
- Xiaofang Yu participated in a summer 2018 NSF-REU program at University of Pennsylvania.

### Recent Presentations:

- H. Tariq\*, N. Spence, R. Felix, Q. Johnson, B.P. Chauhan, M. Chauhan, S. Ghoshal “Synthesis and Anticancer Properties of Polyrhodanine Copper Nanocomposites”, Metropolitan Association of College and University Biologists conference, University of Bridgeport, Bridgeport, CT (November 2023)
- M. Ihnatiuk\*, D.M. Sarno “Polyaniline as an adsorbent for the removal of metal cations from aqueous solution”, Middle Atlantic Regional Meeting of the American Chemical Society, Graduate Center of the City University of New York, New York, NY (June 2023)
- H.M. Yuen\*, S. Lall-Ramnarine, J.F. Wishart “Tailoring the Properties of Imidazolium-Thioether Ionic Liquids through Structural Modification”, Summer Intern Poster and Oral Presentations (Virtual), Brookhaven National Laboratory, Upton, NY (August 2022)

# QCC Origins of Black Holes Research Program



Principal Investigator: Jillian Bellovary, Physics email:  
[jbellovary@qcc.cuny.edu](mailto:jbellovary@qcc.cuny.edu)

Location: Physics Department

## About the Project

Supermassive black holes are some of the heaviest, densest objects in the universe! They are usually found at the centers of massive galaxies. But, we don't understand how they got there! Professor Jillian Bellovary is trying to answer these questions using computer simulations. She uses a program called ChaNGa, which combines the laws of physics and with the ways we think the universe works, to create groups of simulated galaxies. In these galaxies, baby supermassive black holes form. She studies how these black holes form, grow, merge with each other, and affect their surroundings.

This project will make important predictions for a gravitational wave detector that is being designed and built right now. It's called LISA, the Laser Interferometer Space Antenna. Professor Bellovary hopes that she and her students can predict what LISA will detect, which will help us understand how cosmic structure is built at the very beginning of the universe.

## Participation

Students can get paid to participate during the school year and/or during the summer. All students are eligible to apply, but students planning to major in physics will be given preference. Students who participate will learn valuable skills such as scientific knowledge, computer programming, science writing, data visualization, presenting, and problem solving. For more information see this website:  
<https://www.qcc.cuny.edu/physics/nsf-grant.html>

This project is supported by NSF grant AST-2107764.



# Using Cloud Technologies to Develop the Data Analysis Skills of Community College Students

## Background

Queensborough is a Hispanic Serving Institution with over 10,000 students and a 3-year graduation rate of 28.5%. 50% of students are first generation, 90% graduate without debt. 70% of full-time faculty have earned doctoral degrees or other non-doctoral terminal degrees.

- Project Team meets once a week
- Anonymous surveys used to evaluate all project activities
- Evaluator provides feedback

Business Industry Leadership Team includes industry and academia leaders in data analysis/science fields

16 & 23 students in 1<sup>st</sup> & 2<sup>nd</sup> summer boot camps  
100% retention for both

Faculty development activities for years one and two of the grant

Student leadership development through SACNAS QCC Chapter and Data Science Club

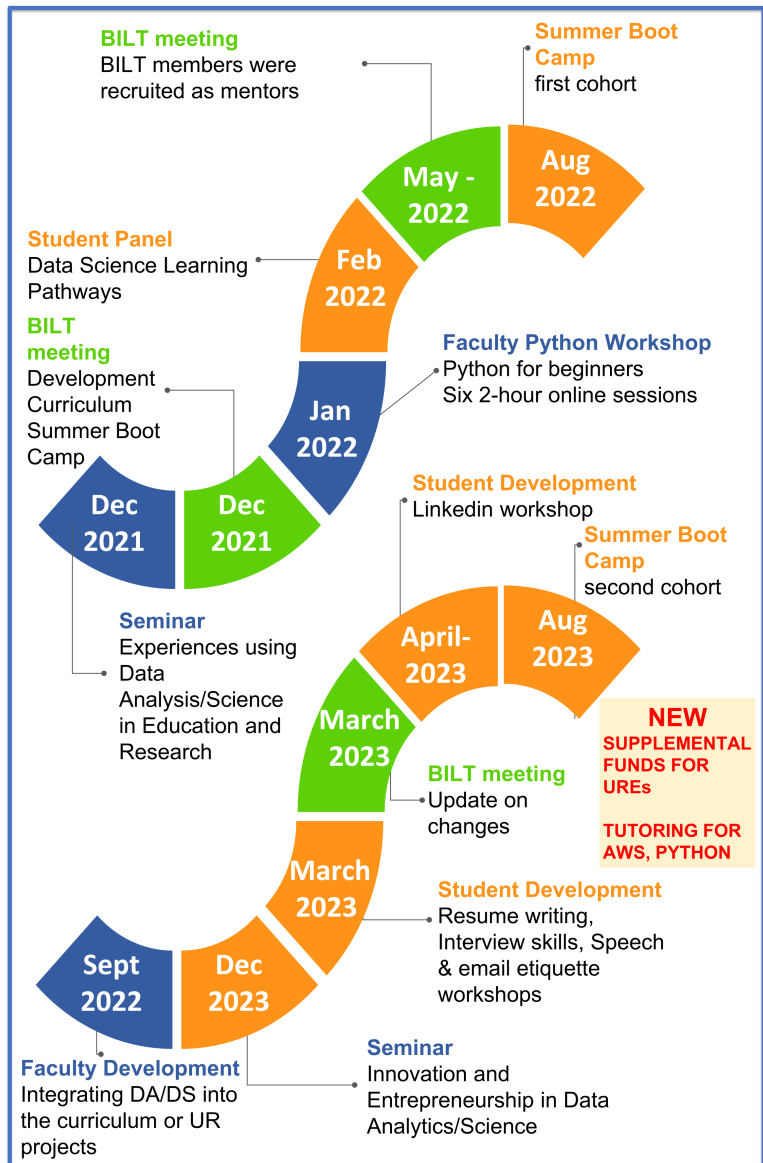
### Students appreciate

*"the practical exercises and deep-dive into these topics, topics that are not taught or are presented in overview mode in regular classes"*

*"being introduced into more intense work and getting experiences of what professionals do in the database tech field"*

*"learning actual applications that I can bring to the workforce and use to build my resume"*

*"realizing how much python is essential and used in tech fields"*



NSF ATE Award No. 2100027

<https://www.qcc.cuny.edu/nsfGrants/nsf-ate.html>

Principal Investigator (PI) Monica Trujillo, [mtrujillo@qcc.cuny.edu](mailto:mtrujillo@qcc.cuny.edu) Co-PI Esmá Yildirim, [eyildirim@qcc.cuny.edu](mailto:eyildirim@qcc.cuny.edu) Senior Personnel Maria Mercedes Franco and Yusuf Danisman

# NIH BioPREP - QCC

## (Biology Partnership in Research and Education Program)



Principal Investigator: Dr. Daniel Moloney, Stony Brook University QCC

coordinator: Dr. Nidhi Gadura  
E-mail: [Ngadura@qcc.cuny.edu](mailto:Ngadura@qcc.cuny.edu)

Special thanks to QCC faculty Drs. Danzi-Engoron, Novick and Ghoshal

NIH funded program to encouraged underrepresented community college students who wish to further their education and pursue careers in biomedical sciences. Paid, 8-week intensive lab experience in biotechnology labs learning molecular biology techniques and performing mentored research projects. Students work on different projects in small groups and the program pays for them to attend regional and national conferences.

So far, **112 students from QCC** have participated in BioPREP since **1997**.

BioPREP Alumni includes **Carlos Penaloza**, Chancellor at Leeward Community College, HI, who said that the experience changed his life and the way he views science.

### Eligibility

- Full-time student at Queensborough Community College
- U.S. Citizen or permanent resident
- Underrepresented student in biomedical sciences (see application)
- Minimum of 24 credits by the end of the Spring semester
- An introductory biology course is a prerequisite (more biology and/or chemistry is preferred)
- Minimum cumulative 3.0 GPA
- The program requires a full-time commitment Monday through Friday for the full eight- week period.

### 2022 QCC students who completed BioPREP at Stony Brook University

Jordan Nacimba  
Suncheng Gao  
Engeddy Meran



## FINANCIAL MACHINE LEARNING WITH PYTHON RESEARCH PROGRAM



**Mentor:** Dr. Yusuf Danisman  
Email: [ydanisman@qcc.cuny.edu](mailto:ydanisman@qcc.cuny.edu)

**Program Coordinator:** Anna Lee  
Email: [anlee@qcc.cuny.edu](mailto:anlee@qcc.cuny.edu)

This hybrid program is aimed to cover several important aspects related to Machine Learning in Finance with Python for middle and high school students. A certificate will be given upon completion of each module. This program is supported by QCC STEP.

### Content

The Financial Machine Learning with Python program covers the following three modules:

- Module 1: Python
- Module 2: Machine Learning
- Module 3: Machine Learning in Finance

### Responsibilities

- Attending on-campus and online sessions.
- Completing lab assignments.
- Completing a research project

### Eligibility

QCC STEP is a state-funded program for students in 7th through 12th grade. To meet the criteria of The NYS Education Department, you must be at least one of the following:

- An underrepresented minority - African American, Hispanic, or Native American
- Qualify for free or reduced school lunch based on income.

QCC STEP Application 23-24: [https://qcccuny.formstack.com/forms/step\\_application](https://qcccuny.formstack.com/forms/step_application)

# NASA-CCNY

## Center for Advanced Batteries for Space



Principal Investigators: Dr. Robert J. Messinger & Dr. Elizabeth Biddinger  
City College of New York, CUNY  
QCC Coordinator: Dr. Sharon Lall-Ramnarine  
E-mail: [slallramnarine@qcc.cuny.edu](mailto:slallramnarine@qcc.cuny.edu)

The NASA-CCNY Center for Advanced Batteries for Space is recruiting talented undergraduates for an exciting summer internship.

The NASA-CCNY Center for Advanced Batteries for Space is a joint research and education center between The City College of New York, NASA's Jet Propulsion Lab, & regional universities that offers a collaborative research network in electrochemical energy storage & a multi-faceted student internship program. Our research objectives are to develop novel battery materials, chemistries, & prototypes that operate under the extreme conditions necessary to significantly enhance the scope & ambition of future NASA planetary science missions.

- This 10-week internship will run from June through August each year.
- Learn how to address the needs of batteries to operate in extreme conditions including making novel batteries and utilizing ionic liquid electrolytes
- Work with a multi-disciplinary team of CCNY chemical engineering faculty, postdoctoral researchers, Ph.D. & undergraduate students, & collaborators

### Eligibility Requirements & Stipend:

- Minimum 3.0 G.P.A.
- Major in Chemical Engineering, Chemistry, Physics or a related discipline
- Participants will receive a \$6,000 stipend.

**\*\*Students from under-represented groups are particularly encouraged to apply\*\***

Interested? Submit your resume & unofficial transcript to [SLallramnarine@qcc.cuny.edu](mailto:SLallramnarine@qcc.cuny.edu) by Feb. 14th.

## NASA-CCNY Center for Advanced Batteries for Space Program Highlights 2023



### 2022 & 2023 Summer Intern: Elijah Bernard

#### Recent Research Presentations:

- **Elijah Bernard**, Michael Keating, Sharon Lall-Ramnarine and Elizabeth Biddinger, Development of Ionic Liquid & Solvate Ionic Liquid Electrolyte for low temperature Li-metal battery, CUNY Research Scholars Program Summer Symposium, La Guardia Community College, CUNY, July 2023. *Best Presentation Award.*
- **Elijah Bernard**, Dr. Sharon Lall-Ramnarine, Dr. Elizabeth Biddinger, Michael J. Keating, “Development of Ionic Liquid & Solvate Ionic Liquid Electrolytes for low temperature Li-metal batteries” to be presented at the 2023 American Chemical Society’s Middle Atlantic Regional Meeting, The Graduate Center, CUNY, June 9, 2023.
- **Elijah Bernard**, Dr. Sharon Lall-Ramnarine, Dr. Elizabeth Biddinger, Michael J. Keating, “Development of Ionic Liquid & Solvate Ionic Liquid Electrolytes for low temperature Li-metal batteries” presented at 2023 CUNY-Wide Undergraduate Research Conference, Borough of Manhattan Community College, CUNY, May 31, 2023.
- **Elijah Bernard**, Dr. Sharon Lall-Ramnarine, Dr. Elizabeth Biddinger, Michael J. Keating, “Development of Ionic Liquid & Solvate Ionic Liquid Electrolytes for low temperature Li-metal batteries”. Presented at the 70th Annual NY American Chemical Society’s Undergraduate Research Symposium, La Guardia Community College. Oral Presentation: May 6, 2023.
- **Elijah Bernard**, Michael Keating, Sharon Lall-Ramnarine and Elizabeth Biddinger, Development of Ionic Liquid & Solvate Ionic Liquid Electrolyte for low temperature Li-metal battery, CUNY Research Scholars Program Summer Symposium, CUNY Zoom, July 2022. *Best presentation of the day award winner.*

## Developing Next Generation Radiation Safety Professionals



Principal Investigators: Dr. Sharon Lall-Ramnarine & Dr. Paul Sideris  
 Program Coordinator: Jennifer Chabra

E-mail: [slallramnarine@qcc.cuny.edu](mailto:slallramnarine@qcc.cuny.edu) [psideris@qcc.cuny.edu](mailto:psideris@qcc.cuny.edu) [jchabra@qcc.cuny.edu](mailto:jchabra@qcc.cuny.edu)

The Developing Next Generation Radiation Safety Professional Program (DNGRSP) is a Department of Energy funded Minority Serving Institution Partnership Program between Queensborough and Brookhaven National Laboratory (BNL). The goal of DNGRSP is to train eligible QCC students for Radiation Safety Technician positions through a certificate program that includes hands-on training and external research opportunities at BNL.



**Earn While You Learn!**

- Take two courses in radiation safety with embedded paid hands-on training that prepare you for technician careers in radiation protection, nuclear medicine & nuclear safety.
- Opportunity to apply for a summer internship (worth \$6,500) at Brookhaven National Laboratory!
- Receive a \$600 stipend for tuition/books!
- Obtain a Radiation Protection Certificate as you earn an Associate in Science degree at Queensborough!

**Eligibility Requirements :**

- Must be a U.S. citizen or lawful permanent resident.
- Must be at least 18 years old.
- Must maintain a cumulative GPA of 3.0.
- Must be a fulltime A.S Degree student at QCC.



## DNGRSP Program Highlights 2023



### DNGRSP Scholars 2023 Cohort:

Maha Almaflehi, Sumaiya Husain, Ahmed Tafsir, Ling Lan Chen, Daletsi Reyes, Pedrocia De-Sosoo, Thrisha Mae Lumor



Participated in National Chemistry Week 2023 at New York Hall of Science



Determined Radiation from Everyday Items



Participated in a Radiation Safety Workshop with Susan Pepper from BNL



Generated Nuclear Isotopes with Dr. Rex Taibu

**UNDERGRADUATE RESEARCH PROGRAMS AT QCC**  
2023-2024 Academic Year

<b>Research Program</b>	<b>Director</b>	<b>Contact</b>
Bridges to the Baccalaureate Program: Research Initiative to Maximize Science Skills	Dr. Patricia Schneider	PSchneider@qcc.cuny.edu
Collegiate Science and Technology Entry Program (CSTEP)	Ms. Marie-Francesca Berrouet	MBerrouet@qcc.cuny.edu
Fall 2022 Student Engagement at the KHC	Laura B. Cohen & Marisa Hollywood	KHC@qcc.cuny.edu
The CUNY Research Scholars Program (CRSP)	Provost Phyllis Curtis-Tweed & Dr. Regina Sullivan	rsullivan@qcc.cuny.edu
The Society for the Advancement of Chicanos/Hispanics and Native Americans in Science	Dr. Maria Mercedes Franco & Dr. Joan Petersen	mfranco@qcc.cuny.edu; jpetersen@qcc.cuny.edu
NSF Research Experience for Undergraduates (REU)	Dr. Todd Holden	THolden@qcc.cuny.edu
QCC NSF S-STEM Scholars Program in Smart Energy	Dr. David Sarno	DSarno@qcc.cuny.edu
QCC Origins of Black Holes Research Program	Dr. Jillian Bellovary	JBellovary@qcc.cuny.edu
Using Cloud Technologies to Develop the Data Analysis Skills of Community College Students	Dr. Monica Trujillo & Dr. Esma Yildirim	MTrujillo@qcc.cuny.edu EYildirim@qcc.cuny.edu
NIH BioPREP - QCC (Biology Partnership in Research and Education Program)	Dr. Daniel Moloney (Stony Brook University) & Dr. Nidhi Gadura (QCC)	NGadura@qcc.cuny.edu
Financial Machine Learning with Python Research Program	Ms. Anna Lee	anlee@qcc.cuny.edu
NASA-CCNY Center for Advanced Batteries for Space	Dr. Robert J. Messinger, Dr. Elizabeth Biddinger (CCNY) & Dr. Sharon Lall-Ramnarine (QCC)	SLallRamnarine@qcc.cuny.edu
Developing Next Generation Radiation Safety Professional Program	Dr. Sharon Lall-Ramnarine & Dr. Paul Sideris	slallramnarine@qcc.cuny.edu; psideris@qcc.cuny.edu; jchabra@qcc.cuny.edu

## Undergraduate Research Day Presenters

Presenter	Mentor	Department	Presentation #
Karina Dykeman	Katherine Griefen	Art and Design	AD1
Katherine Chen	Katherine Griefen	Art and Design	AD2
Kymari Patterson	Katherine Griefen	Art and Design	AD3
FNU Manisha	Sarbani Ghoshal Moni Chauhan	Biological Sciences and Geology	BG1
Stephanie-Marie Flowers	Regina Sullivan	Biological Sciences and Geology	BG2
Fathima Marikar	Sarbani Ghoshal	Biological Sciences and Geology	BG3
Diya D'Costa	Regina Sullivan	Biological Sciences and Geology	BG4
Jonathan Janeke	Sarbani Ghoshal	Biological Sciences and Geology	BG5
Samar Chaudhry, Aysha Asif	Urszula Golebiewska	Biological Sciences and Geology	BG6
Jenyffer Espinoza	Sarbani Ghoshal	Biological Sciences and Geology	BG7
Yosra Agouray	Urszula Golebiewska	Biological Sciences and Geology	BG8
Brandon Collazo	Sarbani Ghoshal	Biological Sciences and Geology	BG9
Jake Jacobo	Mangala Tawde	Biological Sciences and Geology	BG10
Jalen Nicolas	Rondi Davies	Biological Sciences and Geology	BG11
Ashar Malik	Andrew Nguyen	Biological Sciences and Geology	BG12
Maha Abdulkader Almaflehi	Joan Petersen	Biological Sciences and Geology	BG13
Divya Ishmael	Joan Petersen	Biological Sciences and Geology	BG14
Angela Contreras-Torres	Roumen Vragov	Business	BU1
Anaysa Navarette	Roumen Vragov	Business	BU2
Eunji Ahn	Jun Shin	Chemistry	CH1
Chloe Zhang	Zhou Zhou	Chemistry	CH2
Martina Hove	Sujun Wei	Chemistry	CH3
Anna Liu	David Sarno	Chemistry	CH4
Yen Yi Shak	David M. Sarno	Chemistry	CH5
Mehreen Mughal	Sharon Lall-Ramnarine	Chemistry	CH6
Elijah Bernard	Sharon Lall-Ramnarine	Chemistry	CH7
Ling Lan Chen	Sharon Lall-Ramnarine Paul Sideris Rex Taibu	Chemistry	CH8



<b>Presenter</b>	<b>Mentor</b>	<b>Department</b>	<b>Presentation #</b>
Maha Almaflehi	Sharon Lall-Ramnarine Paul Sideris	Chemistry	CH9
Pedrocia De-Sosoo	Sharon Lall-Ramnarine Paul Sideris	Chemistry	CH10
Daletsi Reyes	Sharon Lall-Ramnarine Paul Sideris	Chemistry	CH11
David Cen	Ousmane Sy Savane	Engineering Technology	ET1
David Han	Guozhen An	Engineering Technology	ET2
Michael Delva	Raymond Lam	Engineering Technology	ET3
Oscar Enamorado	Dugwon Seo	Engineering Technology	ET4
Carlos Cordero	Huixin Wu	Engineering Technology	ET5
Sabreen Qaisar	Brigitte Tilley	English	EN1
Angelo Yau	Matthew Lau	English	EN2
Emilio Reynoso	Matthew Lau	English	EN3
Taina Olivo	Matthew Lau	English	EN4
Michael Ventouratos	Matthew Lau	English	EN5
Maryam Balochi	Matthew Lau	English	EN6
Michelle Yosopov	Matthew Lau	English	EN7
Bibi Khan	Matthew Lau	English	EN8
Conor Finley	Matthew Lau	English	EN9
Janeece Lamadieue	Alison Cimino	English	EN10
Ian Kim	Beth Counihan Ilse Schrynemakers	English	EN11
Katrina Weeks	Aviva Geismar	Health, Physical Education, and Dance	HPED1
Kameron Ford	Edward Diller	Health, Physical Education, and Dance	HPED2
Felicity Fernandez	Edward Diller	Health, Physical Education, and Dance	HPED3
Rashmi Ramnarain	Edward Diller	Health, Physical Education, and Dance	HPED4
Aisha Frampton-Clerk	Emily Tai	History	HI1
Davis Willis	Emily Tai	History	HI2
Borana Somen	Marisa Hollywood Laura Cohen	Kupferberg Holocaust Center	*KHC1

<b>Presenter</b>	<b>Mentor</b>	<b>Department</b>	<b>Presentation #</b>
Mohab Hussein	Esma Yildirim	Mathematics and Computer Science	MA1
Stephanie Koester	Esma Yildirim	Mathematics and Computer Science	MA2
Yilong Xiao	Andrew Bulawa	Mathematics and Computer Science	MA3
Shaman Mahmud	Wenjian Liu	Mathematics and Computer Science	MA4
Shelby Brage	Susana Pinheiro	Mathematics and Computer Science	MA5
Zebin Zhang	Kostas Stroumbakis	Mathematics and Computer Science	MA6
Shackeyb Baguaei	Yusuf Danisman	Mathematics and Computer Science	MA7
Frank Desueza	Yusuf Danisman	Mathematics and Computer Science	MA8
Lei Han	Yusuf Danisman	Mathematics and Computer Science	MA9
Dylan Soto	Yusuf Danisman	Mathematics and Computer Science	MA10
Mashtura Rahman	Lyubomir Boyadzhiev	Mathematics and Computer Science	MA11
Angela Sillas-Ramdath	Randelle Sasa	Nursing	NU1
Daniella Iskhakov	Rosalinda Macaluso	Social Sciences	SS1
Christine Yoo	Amy Traver	Social Sciences	SS2
Shantal Edwards	Dr. Jody Resko	Social Sciences	SS3
Davia Willis	Celia Sporer	Social Sciences	SS4
Shantal Edwards	Anissa Moody	Social Sciences	SS5
Christine Yoo	Anissa Moody	Social Sciences	SS6
Gina Renga	Anissa Moody	Social Sciences	SS7
Joy Lee	Anissa Moody Jody Resko	Social Sciences	SS8
Alondra Rodriguez	Jody Resko	Social Sciences	SS9

## Undergraduate Research Day Projects

### Art and Design

AD1

**Case Study of the Museum of Sex.** Karina Dykeman and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

AD2

**Case Study of the Brooklyn Museum.** Katherine Chen and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

AD3

**Case Study of the National Museum of African-American History & Culture.** Kymari Patterson and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

## **Biological Sciences and Geology**

BG1

**Investigation of Anticancer Properties of Polyrhodanine Copper Nanocomposites.** FNU Manisha, Rakiba Kaniz, Dayvon Clinkscales, Moni Chauhan\* and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364, Chemistry Department, Queensborough Community College, Bayside, NY 11364.

BG2

**Investigation of the Levels of Heavy-metal tolerant bacteria in tree and grass bed soil near a powerplant located in Long Island City, NY.** Stephanie-Marie Flowers and Regina Sullivan\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG3

**Investigating the Presence of Sickle Cell Gene by Southern Blotting.** Fathima Marikar, FNU Manisha, Rakiba Kaniz, Emily Benitez and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG4

**Acquisition of Research Skills and Applications to a Research Project in BI554.** Diya D'Costa, Zamatul Ferdouse, FNU Manisha, Bibi Sankar and Regina Sullivan\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364,

BG5

**Tracing Ancestry by analyzing Alu insertion in a Specific Student Population of QCC.** Jonathan Janeke, Mikel Galarza and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG6

**The genes of *Gordonia terrae* phage Pimento.** Samar Chaudhry, Aysha Asif, Jalen Nicolas, and Urszula Golebiewska\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG7

**Identification of Genetically Modified Food Products by Polymerase Chain Reaction.** Jenyffer Espinoza, Mehak Dutta, Yadira Najera and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG8

**Electrical Signals in Mimosa pudica.** Yosra Agouray and Urszula Golebiewska\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG9

**Expression and Purification of Green Fluorescent Protein (GFP).** Brandon Collazo, Jolie Demera, Emily Dragoi and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG10

**Antimicrobial Resistance in Environmental Microbes.** Jake Jacobo and Mangala Tawde\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG11

**Tracing the Origin of Long Island: Radiometric Dating of Zircons in Sediment.** Jalen Nicolas and Rondi Davies\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG12

**Examining the anti-inflammatory effect of green and black tea.** Ashar Malik and Andrew Nguyen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG13

**Who's Bugging the Milkweed? An Investigation of Herbivory on Common Milkweed Plants.** Maha Abdulkader Almaflehi, Malachi Micheal Best, Benjamin D Brown, Sunphechuwat Chaijinda, Jiamiao Chen, Deanna Caitlin Connelly, Divya Ishmael, Erika Juarez, Anna Liu, Jalen Reed Nicolas, Adrian Orellana, Maria Fernanda Reyes Rodriguez, Anthony Rodriguez, Claire Francine Toussaint, Benjamin Ryan Wade and Joan Petersen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

BG14

**Milkweed for Monarchs- Meaningful Meadow Restoration.** Divya Ishmael, Yamin Nandar, Adrian Orellana, Liria Portes, Maria Reyes, Claire Francine Toussaint, Megan Wuerz and Joan Petersen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.



## **Business**

BU1

**An Analysis of the Current State of the Economy & a Monetary Policy Proposal for the Federal Reserve.** Angela Contreras-Torres, Alexander Peralta, Carlos Velasco, Anaysa Navarette, Fan Zhu and Roumen Vragov\*. Business Department, Queensborough Community College, Bayside, NY 11364.

BU2

**Developing an Order and Inventory Management Information System for a Diner Using Spreadsheets.** Anaysa Navarette, Fan Zhu, Izaiah Hunter and Roumen Vragov\*. Business Department, Queensborough Community College, Bayside, NY 11364.

## **Chemistry**

CH1

**Determination of the Refractive Index of Sodium Thiocyanate by the Extension Method.** Eunji Ahn and Jun Shin\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH2

**Study towards the Synthesis of a 1,3,5,7-Cyclooctatetraene Derivative as a Triple State Quencher.** Chloe Zhang and Zhou Zhou\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH3

**Synthesis of X-Shape Molecules as Electron Acceptors in Organic Solar Cells.** Martina Hove, Feruza Turobova, Francisco Caban, Sujun Wei\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH4

**Polyaniline as an adsorbent for the removal of metal cations from aqueous solution.** Anna Liu and David M Sarno\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH5

**Encapsulation and triggered release of fluorescein from porous polymer microspheres.** Yen Yi Shak and David M Sarno\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH6

**Exploring the properties of Pyrrolidinium Thioether Ionic Liquids.** Mehreen Mughal, Nicole Zmich, Furong Wang, James Wishart, Sharon Lall-Ramnarine\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364; Chemistry Division, Brookhaven National Laboratory, Upton, NY 11973.

CH7

**Development of Ionic Liquid & Solvate Ionic Liquid Electrolytes for Low Temperature Li-Metal Batteries.** Elijah Bernard, Elizabeth Biddinger, Michael Keating, Sharon Lall-Ramnarine\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364; Chemical Engineering, The City College of New York; The Graduate Center of The City University of New York.

CH8

**Modeling the Generation and Isolation of Radioisotopes in Nuclear Medicine.** Ling Lan Chen, Sumaiya Husain, Rex Taibu, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364; Physics Department, Queensborough Community College, Bayside, NY 11364.

CH9

**Exploring Radioactivity in Common Building Materials.** Maha Almaflehi, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH10

**Identifying Sources of Background Radiation From Everyday Items.** Pedrocia De-Sosoo, Thrisha mae Lumor, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

CH11

**Radioactivity in Cat Litter.** Daletsi Reyes, Ahmed Tafsir, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

## **Engineering Technology**

ET1

**Monitoring Chlorine residual and other quality parameters of water from internal plumbing system by season and water demand.** David Cen and Ousmane Sy Savane\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

ET2

**Personality Recognition using MBTI model.** David Han and Guozhen An\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

ET3

**3D Printed Desk Lamp.** Michael Delva and Raymond Lam\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

ET4

**Leveraging High-Resolution Urban Canopy Datasets in New York City for Enhanced Weather Prediction.** Oscar Enamorado, Harold Gamarro and Dugwon Seo\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364, City College of New York, New York, NY 10031.

ET5

**Smart Oximeter.** Carlos Cordero and Huixin Wu\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

## **English**

EN1

**My People.** Sabreen Qaisar and Brigitte Tilley\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN2

**Delving into Stephen Jay Gould's historical analysis of renowned painters Leonardo da Vinci and JMW Turner.** Angelo Yau and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN3

**The Mona Lisa's Background and the Saddest Picture Not Involving Human Pain: Leonardo's Theory of the Earth and JMW Turner's Enthusiasm for Technology.** Emilio Reynoso and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN4

**Painting the Whole Picture: Where Science Meets the Arts in the late essays of Stephen Jay Gould.** Taina Olivo and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN5

**The Professor, the Adjunct, and the "Research" Paper: An Analysis of current trends in the political economy of Higher Education.** Michael Ventouratos and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN6

**Academic Publishing and Research: Some Current Perspectives.** Maryam Balochi and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN7

**Academic Publishing Yesterday and Today.** Michelle Yosopov and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN8

**Presentation and Discussion of the film The Five Demands.** Bibi Khan and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN9

**Presenter and Facilitator for a screening of the CUNY history documentary The Five Demands.** Conor Finley and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN10

**Merry-go-round of life.** Janeece Lamadieu and Alison Cimino\*. English Department, Queensborough Community College, Bayside, NY 11364.

EN11

**The English Department's Welcome Read 2023 program: Student Works of Creative Activism.** Ilse Schrynemakers\*, Ian Kim, Tina Ramchad, Carolin Perez, Jonathan Santamo, Isaac Ruiz, Amarelle Alvarez, Maira Martinez, Janeece Lamadieu and Beth Counihan\*. English Department, Queensborough Community College, Bayside, NY 11364.



## **Health, Physical Education, and Dance**

HPED1

**Choreographing for the play "Church".** Katrina Weeks and Aviva Geismar\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

HPED2

**QCC Student Use and Understanding of Marijuana.** Kameron Ford, Schebania Catul, Jaci Hernandez, Ifrana TulTul, Danielle Bellafore, Antonette Paviera, Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

HPED3

**Effective Practices Used by QCC Students to Manage Stress.** Felicity Fernandez, Mahdi Mostofa, Han Ma, Reina Darcely, Dominique Adrien and Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

HPED4

**The Effect of Work on the Mental Health of QCC Students.** Rashmi Ramnarain, Usha Sharma, Adam Torres, Shil Patel, Dannabella Cuello and Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

## **History**

HI1

**Voices and Visions of Black Women during the Harlem Renaissance: A Cultural Analysis of Art and Written Works.** Aisha Frampton-Clerk and Emily Tai\*. History Department, Queensborough Community College, Bayside, NY 11364.

HI2

**Women in the Code of Hammurabi.** Davis Willis and Emily Tai\*. History Department, Queensborough Community College, Bayside, NY 11364.

## **Kupferberg Holocaust Center**

KHC1

**KHC Exhibition Research - Photo Research for Ghettos and Transit Camps.** Borana Somen, Marisa Hollywood\* and Laura Cohen\*. Kupferberg Holocaust Center, Queensborough Community College, Bayside, NY 11364.

## Mathematics and Computer Science

MA1

**Network-aware Load Balancing for Cloud Storage Systems using Time Series Forecasting Models.** Mohab Hussein and Esma Yildirim\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA2

**Positive and Negative Mood Detection Using Sentiment Analysis on Literary Work of Middle Grade Students.** Stephanie Koester and Esma Yildirim\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA3

**Recursive Sequences as Solutions to a Generalized Pell equation.** Yilong Xiao and Andrew Bulawa\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA4

**Probability Concentration Bounds and Applications.** Shaman Mahmud and Wenjian Liu\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA5

**Mathematical Modeling of Infectious Diseases.** Shelby Brage and Susana Pinheiro\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA6

**Adolescents' environmental experiences, mental health, and behaviors: exploration with Add Health data.** Zebin Zhang and Kostas Stroumbakis\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA7

**Comparing the Performance of Classical Machine Learning Models with LSTM in Predicting Stock Prices.** Shackeyb Baguaei and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA8

**The Effects of Technical Indicators on the Prediction of Stock Prices.** Frank Desueza and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA9

**Forecasting and Optimization of S&P 500 Component Stocks.** Lei Han and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA10

**Hyperparameter Optimization for Predicting Stock Market Behavior.** Dylan Soto and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

MA11

**Fractional Schrodinger Wave Equation.** Mashtura Rahman and Lyubomir Boyadzhiev\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

## **Nursing**

NU1

**The Effectiveness of Artificial Intelligence in Early Prediction of Sepsis among Adult Patients: A Limited Literature Review.** Angela Sillas-Ramdath and Randelle Sasa\*. Nursing Department, Queensborough Community College, Bayside, NY 11364.

## **Social Sciences**

SS1

**Depths of Depression.** Daniella Iskhakov and Rosalinda Macaluso\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS2

**A Cross-Generational Comparison of the Immigration/Post-Immigration Experiences of Korean Americans.** Christine Yoo and Amy Traver\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS3

**Body Positivity and The Influence of Age Gender and Social Media Among College Students.** Shantal Edwards and Dr. Jody Resko\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS4

**Punitive, Punishment and Politics from the College Student Perspective.** Davia Willis and Celia Sporer\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS5

**Unraveling the Burden: Internalized Stigma and its Effects on Individuals Affected by Schizophrenia.** Shantal Edwards and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS6

**Mitigating the Legacy of Intergenerational Trauma in Korean Americans by Increasing Community Intervention and Mental Health Service Utilization.** Christine Yoo and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS7

**Aren't We On The Same Team? An Examination of How Gender Role Stereotypes Impact Performance Feedback in the Workplace.** Gina Renga and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS8

**Speaking My Stakes: Identity-centered Self-advocacy as a Mediator of Health Equity for Individuals with Non-apparent Disabilities.** Joy Lee, Anissa Moody\* and Jody Resko\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

SS9

**Undergraduate Students' Perspectives on College Readiness.** Alondra Rodriguez and Jody Resko\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

## **Undergraduate Research Day Abstracts**



## Art and Design

AD1

**Case Study of the Museum of Sex.** Karina Dykeman and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

For my Art Institutions and Business class, which is part of the Gallery and Museum Studies program, the museum I will be analyzing is the New York City branch of The Museum of Sex, an institution educating the public on a topic still considered taboo by many contemporary audiences. I will be accessing the strengths, weaknesses, opportunities and threats of the institution in a SWOT report, which is an assessment of internal and external factors that work both to the benefit or detriment to an organization, as well as addressing any discrepancies in income and pay of current and past employees. The history of The Museum of Sex in conjunction with its current mission will also be investigated as to give a fuller picture and to encourage more prospective visitors to make the leap to actually visit.

AD2

**Case Study of the Brooklyn Museum.** Katherine Chen and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

For my Art Institutions and Business class in the Gallery and Museum Studies program, I selected the Brooklyn Museum to address in a case study. The Brooklyn Museum offers a rich cultural experience through its diverse collection of art. Its mission is "To bring people together through art and experiences that inspire celebration, compassion, courage, and the will to act." I will be considering through the institution's strengths, weaknesses, opportunities, and threats in a SWOT report and looking at various aspects of the museum's inner workings from its employees to its income and fundraising. I will also speak to the museum's history and the present day activities of this beautiful institution.

AD3

**Case Study of the National Museum of African-American History & Culture.** Kymari Patterson and Katherine Griefen\*. Art and Design Department, Queensborough Community College, Bayside, NY 11364.

For my Art Institutions and Business class in the Gallery & Museum Studies program, I will be conducting a case study of the National Museum of African-American History & Culture. This museum offers a diverse cultural experience regarding a marginalized demographic in history through various displays of art, artifacts, and historical documents. This public institution's mission is "open to all, where anyone is welcome to participate, collaborate, and learn more about African American history and culture". With a focus on the museum's performative art, visitor experience, and department pay distribution, I will be highlighting the strengths, weaknesses, opportunities, and threats in a SWOT report.

## Biological Sciences and Geology

BG1

**Investigation of Anticancer Properties of Polyrhodanine Copper Nanocomposites.** FNU Manisha, Rakiba Kaniz, Dayvon Clinkscales, Moni Chauhan\* and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364, Chemistry Department, Queensborough Community College, Bayside, NY 11364.

Rhodanine (derived from thiazolidine), a heterocyclic compound, plays an essential role in the biological system of humans. Its derivatives are present in drugs used in antibiotics, antiviruses, antidiabetics, and antifungals. We hypothesize that the shape-controlled synthesis of PolyRhodanine will provide an exciting perspective for diagnosing and treating diseases, including cancer. In our research, we investigate the synthesis of PolyRhodanine in a single-step oxidation-reduction reaction in the presence of transition metals in the microwave. Subsequently, we tested our compound in a human lung cancer cell line, namely A549, to measure cancer cell viability by the colorimetric MTT (3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide) assay. The MTT assay is used to measure cellular metabolic activity as an indicator of cell viability and cytotoxicity. The underlying principle is the ability of NADPH-dependent cellular oxidoreductase enzyme secreted by the mitochondria to convert the tetrazolium dye into insoluble formazan crystals. More formazan crystal formation indicates more viable cells. In our experiment, 20,000 cells were plated in each well of a 96-well plate and treated with the compound for 48 hours to investigate the viability of lung cancer cells. Our data shows viability of A549 cells decreases in a dose dependent manner with treatment concentrations from 0.01 $\mu$ M to 1 $\mu$ M in comparison to cells in the DMSO control treatment group. Future studies will focus on investigating the effect in other cancer cell lines, including triple negative breast cancer cells.

BG2

**Investigation of the Levels of Heavy-metal tolerant bacteria in tree and grass bed soil near a powerplant located in Long Island City, NY.** Stephanie-Marie Flowers and Regina Sullivan\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

The overall goal of this research project is to investigate how the presence of heavy metals in soil influences the relative amounts of heavy metal tolerant bacteria such as *Pseudomonas aeruginosa*. Soil from tree and grass beds near an electrical power plant located in Long Island City, NY were sampled. The power plant was recently updated to use only renewable energy sources. However, since the 1960's much of the plant's power came from coal. Studies have correlated the presence of heavy metals in soil near power plants and the subsequent effect on plant life. Samples were taken from three tree beds and one grass bed surrounding the power plant. The level of heavy metals in the soil will be determined using a hand-held X-ray Fluorescence Analyzer available in the QCC Department of Biological Sciences. The instrument is capable of measuring Pb, Cd, Cr, As, Cu, Zn, Ni and Fe. DNA will be extracted from soil samples using the Qiagen DNeasy PowerSoil Prokit extraction kit. We will purchase Loop-mediated isothermal amplification (LAMP) assay primers specific for *Pseudomonas aeruginosa* outer-membrane lipoprotein gene. The samples will be analyzed using the WarmStart Colorimetric LAMP assay purchased from New England Biolabs to determine the relative amount of *Pseudomonas aeruginosa*.

BG3

**Investigating the Presence of Sickle Cell Gene by Southern Blotting.** Fathima Marikar, FNU Manisha, Rakiba Kaniz, Emily Benitez, Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Sickle cell anemia (SCD) is an autosomal recessive hereditary disease that affects about 100,000 people in the United States. The disease is caused by a mutation in the hemoglobin (Hb) beta gene located on chromosome 11. Such mutated Hb molecules cause red blood cells (RBC) assume a sickle or crescent shape and pile up causing blockages in the blood vessel. A part of the normal sequence of Hb allele is CCTGAGG, which happens to correspond to the restriction site of the enzyme MSTII (CCTNAG, where N can represent any of ATGC). In a genetic test determining SCD, DNA samples are digested with MSTII first and subsequently a Southern Blot can be conducted to identify the mutated allelic sequence. In our experiment, two parents wished to determine the odds of their child being affected by SCD. MSTII digested samples from both parents and child were run on a gel and a Southern Blot with non-isotopic detection was conducted. Our data shows that both parents were carriers of the disease (heterozygous, otherwise denoted as SCT) and their child had a normal genotype for the condition studied. Mendelian inheritance pattern revealed a 25% probability for SCT parents bearing a child with normal genotype.

BG4

**Acquisition of Research Skills and Applications to a Research Project in BI554.** Diya D'Costa, Zamatul Ferdouse, FNU Manisha, Bibi Sankar, Regina Sullivan\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364,

Students in Dr. Sullivan's BI554, a research class, learn the basics of cell culture and apply their knowledge to an ongoing research project. In the Fall 2023 semester, the students learned how to culture A549 cells, a human lung cancer cell line, to count the cells and determine viability using a hemocytometer and trypan blue. For the research project, the students participated in an ongoing project which investigates the effect of low molecular weight proteins isolated from curry leaves on cancer cell viability and migration. This a collaborative research project between Dr. Sullivan, Dr. Ghoshal (QCC) and Dr. Rajapakse of Medgar Evers College. Students performed a BCA protein assay, a MTT assay and Wound Healing Assay. The students will discuss the techniques and results obtained from each assay.

BG5

**Tracing Ancestry by analyzing Alu insertion in a Specific Student Population of QCC.** Jonathan Janeke, Mikel Galarza and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Alu elements are highly repetitive DNA sequences found in humans and primates. Though originally thought to have no function, Alu elements proved to have importance related to ancestral tracing and biomarking. The name Alu comes from the restriction enzyme, Alu I, responsible for identifying and cleaving the Alu sequence. It is estimated that the human genome consists of anywhere between 100,000 - 1,000,000 copies of the Alu sequence, constituting approximately 10% of the entire genome. In humans, the Alu sequence is located at the PV92 locus on chromosome 16. Individuals can have a heterozygous (+/-), homozygous (+/+), or null genotype (-/-) for the Alu insertion. Homozygous individuals contain the Alu sequence on both homologs. Heterozygous individuals contain one Alu sequence on one homolog.

Null genotype individuals contain no Alu sequences on either homolog of chromosome 16. The present study was conducted using human genomic DNA obtained from cheek cells of students in the BI-453 Honors Biotechnology class, to gain insight into their ancestry. Polymerase Chain Reaction (PCR) was used to amplify the regions of Alu insertion on the PV92 locus. This was achieved by adding primers complementary to the DNA sequence around the Alu insertion, which helped with amplification of the DNA. The PCR products were then run on a 2% agarose gel. Our results showed band patterns corresponding to homozygous, heterozygous or null genotypes. A single 700 bp band represented homozygous genotype (+/+). Two bands, one at 700 bp and the other at 400 bp band represented heterozygous genotype (+/-). A single band at 400 bp was representative of null genotype (-/-) for Alu insertion at PV92 locus on chromosome 16. Overall, the Alu insertion was found to be more common in Hispanic and Asian students. Our findings shed light on the genetic diversity among different students in class.

BG6

**The genes of *Gordonia terrae* phage Pimento.** Samar Chaudhry, Aysha Asif, Jalen Nicolas, Urszula Golebiewska\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Bacteriophages are viruses that infect and reproduce inside bacterial cells. In this project we explored the genome of a bacteriophage that was isolated from *Gordonia terrae*. The virus was found in Oklahoma City in 2019 by Cameron Kedy and Hari Kotturi students from University of Central Oklahoma. They named it Pimento for a character name from the show Brooklyn-99. QCC BI 202 lab adopted Pimento's genome for annotations and analysis. We used computational tools such as DNAMaster, Gene Mark, Glimmer, Straterator, Phamerator, deep TMHMM and PhageDB website. Here we present what we learned about Pimento and its genes. Pimento belongs to the cluster DI, with 13 other phages. The genome of Pimento is 499 994 nucleotides long, and GeneMark and Glimmer predicted 78 protein coding segments. The average genome size in cluster DI is 50 304, and contains 75 genes. The closest relative to Pimento is DelRio, another DI phage, they share 96.7% identity. We identified genes that are required for the formation of the protein coat such as: terminase, portal protein, capsid maturation protease, scaffolding protein, major capsid protein, head to tail connector and stopper, tail terminator, major and minor tail proteins, tail assembly chaperones and tape measure protein. We found proteins needed for the lysogenic life cycle such as integrase and immunity repressor and toxin anti-toxin as well as lysins, holin. and membrane proteins. We could not assign function to 37 of the genes. Majority of the unknown proteins are located towards the end of the genome. Here we will present the well characterized genes from the first half.

BG7

**Identification of Genetically Modified Food Products by Polymerase Chain Reaction.** Jenyffer Espinoza, Mehak Dutta, Yadira Najera and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Genetically modified (GM) products originate from organisms where DNA has been altered using biotechnology and genetic engineering. For plants, such genetic modifications can enhance crop production, delay ripening of fruits and vegetables, make food more nutritious as also provide resistance



from insects. Multiple big corporations producing and promoting GM food exist throughout the world, including many in the United States. However, this field of GMO (genetically modified organism) is not free from controversies. The present experiment was conducted to investigate if many of the commonly available fruits and vegetables, especially those marketed as organics, were genetically modified or not. We isolated DNA from food samples and conducted a Polymerase Chain Reaction (PCR) with three sets of primers targeting the chloroplast gene segment, CaMV 35S promoter, and cry1f to indicate if the food sample was GM. The PCR product from chloroplast gene indicated it was a plant product and that DNA was properly isolated. A band for CaMV promoter indicated that a transgene was introduced, unless the food was a crucifer. Presence of a cry1f band indicated presence of an insecticidal transgene. Our experiment was limited by the number of primers used and hence the number of genes studied to label a product non-GMO. However, our type of study is critical, as being a consumer-based society, all consumers would like to know whether they are ingesting GMO.

BG8

**Electrical Signals in *Mimosa pudica*.** Yosra Agouray and Urszula Golebiewska\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Plants are often regarded as immobile organisms, because they do not normally make fast movements that can be easily observed by humans. A variety of plants such as legumes can open and fold their leaves in response to the daylight cycle. *Mimosa pudica* is called the sensitive plant, that in response to stimulation or touch, rapidly folds and closes its leaves. These movements are rapid and might be quite dramatic. The impulses that trigger this rapid movement are electrical signals similar to action potential in muscles in animals. These signals can be transported over long distances and affect other leaves not only the one stimulated. These action potentials are caused by the movement of ions across the cell membrane. Our research is aimed at understanding more about the causes of the rapid movement, the differences caused by different stimuli and the diversity of responses and recovery. We performed preliminary experiments. The plant was connected to a measuring device via electrodes and the signals generated were recorded by a computer. We observed that a spike in the membrane potential was generated when a leaflet was touched. Subsequent touches did not generate another signal and the leaf required full recovery to be stimulated again. After 15 minutes recovery, upon touching the leaves an action potential was produced again and the leaves started folding. The second signal was larger and leaf required much longer to recover. We are going to explore the strength of signal and the time needed for the leaves to recover. Future work will focus on exploring the mechanisms that contribute to the *Mimosa pudica*'s electrical signaling, which is a crucial component to its movement. In addition, we aim to investigate the molecular and biological activity that occurs within the plant's cells that facilitate the leaf's folding.

BG9

**Expression and Purification of Green Fluorescent Protein (GFP).** Brandon Collazo, Jolie Demera, Emily Dragoi and Sarbani Ghoshal\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Genetic transformation is a process by which cells take up and incorporate foreign DNA and express new characteristics. Our present research is an excellent depiction of the Central Dogma of molecular biology; we introduced a plasmid DNA into bacterial cells to express a protein and observe a phenotypic change

due to the transformation process. The plasmid used is called pGLO, which contains an ampicillin resistant gene alongside GFP (Green Fluorescent Protein). The plasmid is constructed in a way, that the transcription of GFP can be induced only by addition of arabinose. Briefly, we transformed E.coli with pGLO using calcium chloride and heat shock. Addition of arabinose in the growth plate resulted in visualization of fluorescent green colonies of transformed bacteria under UV light. Subsequently, we purified the GFP using hydrophobic interaction chromatography (HIC). Our results show that we successfully expressed GFP in E.coli and were able to purify the protein from a mixture of multiple proteins found in the bacterial culture. By examining the resulting fluorescence and antibiotic resistance patterns, we gained insights into the principles of molecular biology, genetic engineering, and the regulation of gene expression.

BG10

**Antimicrobial Resistance in Environmental Microbes.** Jake Jacobo and Mangala Tawde\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Antibiotic resistance in infectious agents is a grave concern in clinical practice since more and more bacterial pathogens are becoming resistant to commonly used antibiotics. One of the major mechanisms of antibiotic resistance is acquisition of resistance genes by pathogens encoding antimicrobial products or alteration of antibiotic targets. Though the acquisition process of resistance genes is not well understood, environmental microbes, including the species producing antimicrobial agents, are believed to be important sources of resistance transfer amongst species. Antibiotic producing bacteria harbor resistance elements for self-protection that are often clustered with genes coding for antibiotics. Soil and waterbodies could thus serve as an under recognized reservoir for antimicrobial resistance in clinically important pathogens. Hence, an understanding of antibiotic resistance frequencies as well as new mechanisms of resistance in environmental microbes is highly critical. We began our research project with an extensive review of scientific literature to gather current knowledge in the field. We have collected soil/water samples from local NY regions and will proceed with isolation and characterization of microbes of particular interest. Here we present the key findings from the field which will inform our research designs.

BG11

**Tracing the Origin of Long Island: Radiometric Dating of Zircons in Sediment.** Jalen Nicolas and Rondi Davies\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

The glacial sediment that comprises Long Island is populated with grains of a mineral called zircon, which contains trace amounts of radioactive uranium. Zircon grains are an invaluable tool in determining the age of their source rock. For our research, we dated grains from across the island, and compared their ages to those of rocks on the mainland. This allows us to attempt to pinpoint the specific source rocks that have contributed to glacial sediments that make up Long Island and trace the direction that glaciers moved during the Pleistocene glaciation.

BG12

**Examining the anti-inflammatory effect of green and black tea.** Ashar Malik and Andrew Nguyen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Tea, the second most widely consumed beverage in the world after water, is traditionally made either by brewing tea leaves (*Camellia sinensis*) in actively boiling water or leaving them to steep in freshly boiled water. This in-vitro study is intended to evaluate the anti-inflammatory effects of green and black tea, which are widely touted as benefits of the drink. To examine the anti-inflammatory effects of tea, we will use boiled tea extracts and test them in the widely acceptable model of macrophage cell line (RAW264.7) stimulated with lipopolysaccharide (LPS). The expression of pro-inflammatory cytokines such as, tumor necrosis factor- $\alpha$ , interleukin (IL)-6, IL-1 $\beta$ , inducible nitric oxide synthase (iNOS), and inducible form of cyclooxygenase-2 (COX-2) will be analyzed using qPCR.

BG13

**Who's Bugging the Milkweed? An Investigation of Herbivory on Common Milkweed Plants.** Maha Abdulkader Almaflehi, Malachi Micheal Best, Benjamin D Brown, Sunphechuwat Chaijinda, Jiamiao Chen, Deanna Caitlin Connelly, Divya Ishmael, Erika Juarez, Anna Liu, Jalen Reed Nicolas, Adrian Orellana, Maria Fernanda Reyes Rodriguez, Anthony Rodriguez, Claire Francine Toussaint, Benjamin Ryan Wade and Joan Petersen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Milkweed plants are essential for the survival of Monarch Butterflies (*Danaus plexippus*), which have recently been placed on the endangered species list. To better understand the factors that impact milkweed growth, we collected data about the insects found on common milkweed (*Asclepias syriaca*) found in Oakland Lake Wildflower Meadow. Forty plants in four distinct areas of the meadow were identified for observation. For each plant, we recorded the types and numbers of insects found, as well as the total number of leaves and the percentage of leaves that had evidence of insect herbivory. Our results indicate that many insects rely on common milkweed for habitat and/or food. The most common insect we observed were milkweed bugs, which were in a clumped dispersion pattern and primarily located on seed pods. We also observed spiders, ants, ladybugs, bees, flies, and a few unidentified larvae. Our preliminary data shows correlations between meadow location and milkweed herbivory- we observed the highest number of milkweed bugs on plants in a heavily disturbed area adjacent to the Cross Island Expressway, and the lowest numbers in a central (less disturbed) meadow area. Leaf herbivory was variable in all areas, but the average percentage of chewed leaves was also highest at the heavily disturbed site and lowest at the least disturbed site. In our study, we did not observe any aphids, tussock moths, red milkweed beetles, or other insects commonly found on milkweed plants. Further investigation is needed to determine if these herbivores would be present earlier in the growing season. Our data has been shared with the Milkweed Adaptation Research and Education Network (MAREN), a national network that is focused on determining factors that affect milkweed growth and survival. Understanding the relationship between herbivory and milkweed survival is needed to inform proper conservation and restoration practices.

BG14

**Milkweed for Monarchs- Meaningful Meadow Restoration.** Divya Ishmael, Yamin Nandar, Adrian Orellana, Liria Portes, Maria Reyes, Claire Francine Toussaint, Megan Wuerz and Joan Petersen\*. Biological Sciences and Geology Department, Queensborough Community College, Bayside, NY 11364.

Migratory monarch butterfly numbers have been drastically declining in recent years. Since monarch butterflies only lay eggs on milkweed plants, and monarch larvae feed exclusively on milkweed leaves, successful habitat restoration aimed at monarch conservation must include this essential plant. To further understand the conditions required for milkweed growth and reproduction, we teamed up with the Milkweed Adaptation Research and Education Network (MAREN) group. We located four distinct patches of common milkweed plants within Oakland Lake Wildflower Meadow and tagged ten plants/patch. We measured plant height, number of seed pods, number of leaves, and phenological stage (unripe pods, ripe/dispersing pods, and empty/fully dispersed pods). Our results showed variations in plant characteristics across the four patches in plant height and numbers of pods. Overall, taller milkweed plants tended to have a higher number of pods. For example, plants growing closest to the Cross Island Expressway averaged 125.1 cm in height and had an average pod count of 9.5. In contrast, a central area of the meadow had plants with an average height of 94.4 cm and an average pod count of 1.4. We recorded the highest leaf counts in a patch near Cloverdale Boulevard, whereas plants with the fewest leaves were located in the central area. Although plant height, pod count, and leaf number varied between the four patches, phenological stages remained consistent. At the end of the growing season, we collected ripe seed pods and shared the seeds with the MAREN Network. MAREN investigators will use our Oakland Lake Wildflower Meadow seeds in experiments aimed at determining the impact of local adaptations on milkweed growth and survival. Our observations will also contribute to an increased understanding of milkweed growth requirements. This information is crucial to ensuring the survival of the endangered Monarch Butterfly. Â

## **Business**

BU1

**An Analysis of the Current State of the Economy & a Monetary Policy Proposal for the Federal Reserve.** Angela Contreras-Torres, Alexander Peralta, Carlos Velasco, Anaysa Navarette, Fan Zhu and Roumen Vragov\*. <sup>1</sup>Business Department, Queensborough Community College, Bayside, NY 11364.

The purpose of this project is to analyze relevant economic data from the past two years and recommend actions that the Federal Reserve Board can take during its next meeting to implement the appropriate monetary policy for the US. We consider data on Potential and Real Gross Domestic product and its components from the income, expenditure, and production viewpoint. We also discuss trends in the Unemployment rate and the Labor participation rate. Major attention is also devoted to the current worrisome tendencies in inflation by discussing movements in the Consumer Price index, the Headline and Core Personal Consumption Expenditure Index, and the Producer Price index. After analyzing the trends in the economic data and assessing both the positive signs and the risks to the economy we propose that the Federal Reserve consider a monetary tightening by increasing the target Federal Funds rate by 0.25% during its next meeting.

BU2

**Developing an Order and Inventory Management Information System for a Diner Using Spreadsheets.** Anaysa Navarette, Fan Zhu, Izaiah Hunter and Roumen Vragov\*. Business Department, Queensborough Community College, Bayside, NY 11364.

In the development of the Avenita Diner project, we've established a Excel workbook to manage and analyze key operational data. The workbook comprises two primary sheets: 'Customer Orders & Feedback' and 'Inventory Management.' These sheets are meticulously designed with data validation rules to ensure accurate and consistent data entry, which is essential for reliable analytics. Drop-down menus have been incorporated for standardized entries, such as dish names and suppliers. We log details like the customer's name, contact info, what they ordered, the price of their meal, and when it was delivered. We also have space for any special cooking instructions and their feedback. The 'Inventory Management' sheet keeps track of our food stocks. It records what ingredients we buy, from which supplier, how much they cost us, and how many we have left. We've used a PivotTable here, which lets us break down our inventory by ingredient or supplier and track costs over time. It's a great visual tool to quickly check our stock levels without having to scroll through rows and rows of data. With these sheets, we're able to stay on top of orders and inventory in a way that's organized and easy to understand. Such a system can make the business run more smoothly and also allow for future modifications.

## Chemistry

CH1

**Determination of the Refractive Index of Sodium Thiocyanate by the Extension Method.** Eunji Ahn and Jun Shin\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

The extension method, which was developed based on the observation of a good linear relationship between the percent mass of solution (solid solute and liquid solvent mixture) and its refractive index, has been used to determine the refractive index of solid compounds such as fatty acids, organic and ionic compounds. In the system, a plot of refractive index vs percent mass was obtained in low concentration ranges (0 - 60% or less), and the line of the linear plot was extrapolated to 100% mass (i.e. pure solid) where the refractive index of the solid was calculated. The extension method has been further applied to measure the refractive index of sodium thiocyanate (NaSCN) because it showed good solubility in water and some alcohols such as methanol and ethylene glycol. In the investigation, a linear plot was obtained as expected between the % mass of sodium thiocyanate in a solvent and its refractive index, and a first order linear equation was calculated based on the plot. By applying 100 to the % mass variable (100% mass means pure solute, the solid sodium thiocyanate) of the linear equation obtained, the refractive index of sodium thiocyanate was indirectly determined in the solvent. Based on the data measured in methanol solution of sodium thiocyanate, a linear equation (e.g.  $y=0.002324x + 1.327490$ ) was obtained, then a value of 100% was applied to get the refractive index of sodium thiocyanate in methanol, which was 1.560. After two more trials, 1.561(2) was determined as the refractive index of sodium thiocyanate in methanol (Lit. Value: 1.545).

CH2



**Study towards the Synthesis of a 1,3,5,7-Cyclooctatetraene Derivative as a Triple State Quencher.** Chloe Zhang and Zhou Zhou\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

In the last forty years, single molecular spectroscopy in condensed biological system has made great impact in understanding the mechanism of biology and diseases. Compared to "bulk investigation", single molecular spectroscopy demands fluorophores of higher qualities. Each dye molecule has to be the only light source in the biological system that is under investigation. One of the strategies to improve the fluorophores is to covalently couple triple state quenchers (TSQs) to them. TSQs are small organic molecules that can shorten the triplet state of fluorophores. 1,3,5,7-cyclooctatetraene (COT) has been known as an efficient triple state quencher for cyanine dyes. In order to achieve the best results, structural modifications of COT are required to covalently link it to cyanine dyes. Addition of one equivalent of bromine followed by E2 elimination produced COT-Br, which was then converted to a Grignard reagent. Upon treatment of dry ice, the COT carboxylic acid was obtained in a good yield. The goal is to synthesize a COT derivative that can be linked via amide bond to the amino group on the double reactive cyanine dyes directly.

CH3

**Synthesis of X-Shape Molecules as Electron Acceptors in Organic Solar Cells.** Martina Hove, Feruza Turobova, Francisco Caban and Sujun Wei\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

The C<sub>60</sub> fullerene-based acceptor readily accepts electrons from a wide range of donor materials and exhibits high electron mobility. However, fullerene is not an ideal material due to its weak absorption and very deep LUMO level. Therefore, there is a clear need for alternative acceptor materials. We propose to synthesize X-shape molecules as electron acceptors via strain and Hückel aromaticity as the driving forces. The molecule's bottom half is a fluorene unit, and the top half is a fused heterocyclic ring. Both motifs are twisted along a central double bond. We have synthesized first two targets in four synthetic steps. These red compounds show intense green fluorescence. Their structures were preliminarily confirmed by H-NMR and C-NMR. With these compounds in hand, further investigations such as X-ray crystallography and fluorescence quantum yield are set to go. A third target with nitro substitutes is on the way.

CH4

**Polyaniline as an adsorbent for the removal of metal cations from aqueous solution.** Anna Liu and David M Sarno\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

Polyaniline (PANI) is a widely used conductive polymer with a variety of applications. This includes remediation of wastewater as the amine groups on the polymer backbone are reported to bind to certain

metal cations. High surface area morphologies such as nanofibers can provide more active sites to interact with the ions; however, the PANI particles could pollute the systems in which they are deployed. To avoid such contamination, we confined dispersions of PANI nanofibers to dialysis tubing. The neutral emeraldine base form of the polymer (PANI-EB) was used, rather than the emeraldine salt (PANI-ES) whose cationic backbone may repel the metal cations. Samples were immersed in aqueous solutions of 0.01M copper (II) sulfate and gently stirred for increasing periods of time. Preliminary energy dispersive spectroscopy (EDS) data indicates the presence of copper after the adsorbent was removed from the aqueous solutions. The greatest percent by mass of copper was observed when samples were simply filtered and dried in air. Less copper was present after washing with water because  $\text{CuSO}_4$  adsorbed onto the polymer surface was washed away. Virtually no copper was observed after washing with 1M HCl. We hypothesize that by protonating PANI-EB to PANI-ES, the resulting positive charge on the polymer repels the metal ions bound to the amine groups. This result suggests a method to reclaim the polymer for reuse. The viability of PANI-EB dispersions as adsorbents for  $\text{Cu}^{2+}$  and other cations will be determined over a range of concentrations via SEM, EDS, FTIR and UV-VIS.

CH5

**Encapsulation and triggered release of fluorescein from porous polymer microspheres.** Yen Yi Shak and David M. Sarno. Chemistry Department, Queensborough Community College, Bayside, NY 11364.

Porous polymer capsules are of interest for loading, transport, and delivery of a variety of active payloads. These include systems for drug delivery and medical imaging, and materials with self-healing and anticorrosion properties. We have previously developed a single surfactant water-in-oil-in-water (W/O/W) double emulsion method that produces porous microspheres of poly(o-toluidine) (POT). Our goal is to determine if a payload can be encapsulated during sphere formation and subsequently released. Fluorescein (FL) was chosen as a model payload because its presence is easily detected under UV light. After POT/FL capsules were prepared, surface fluorescein was completely removed by centrifugation in  $\text{NH}_4\text{OH}$  then water, and samples were either kept in dispersion or filtered and dried. No fluorescence was observed under UV light; however, they fluoresced brightly after brief sonication in water or  $\text{NH}_4\text{OH}$ , indicating the release of the payload. SEM images showed these capsules had been degraded. UV-Vis spectroscopy confirmed the release of FL into alkaline solution after sonication. The only evidence of FL in intact POT capsules was a pair of very weak peaks near 1240 and 1260  $\text{cm}^{-1}$ . Increasing concentration of FL during sphere formation resulted in qualitatively brighter fluorescence after sonication. Unsonicated samples began to fluoresce over time, suggesting the slow migration of FL from the interior. Our results suggest the immediate release of a payload can be mechanically triggered, whereas we hypothesize a porous outer surface may allow for its slow release. More broadly, our W/O/W approach shows promise as a simple method for producing functional porous polymer capsules. We plan to test a range of polymer/payload ratios, and also to determine if molecular weight of the payload plays a role in its encapsulation or release. Finally, confocal fluorescence microscopy might detect the migration of FL to the surface and possibly probe the interior of capsules.

CH6

**Exploring the properties of Pyrrolidinium Thioether Ionic Liquids.** Mehreen Mughal, Nicole Zmich, Furong Wang, James Wishart and Sharon Lall-Ramnarine\*. Chemistry Department, Queensborough

Community College, Bayside, NY 11364; Chemistry Division, Brookhaven National Laboratory, Upton, NY 11973.

Ionic liquids are attractive as green solvents, primarily due to their impactful applications in devices (for the production, storage, and efficient utilization of energy). They are considered safer alternative electrolytes in electrochemical devices, including rechargeable lithium cells, solar cells, and supercapacitors. However, their relatively high viscosities result in slower charge transport, limiting potential applications. It is established that substituting ether side chains for alkyl side chains attached to the cations, lower the viscosities of ILs. More recently, ILs with thioether-functionalized side chains have been attracting attention. However, data is largely missing from the literature on ILs with thioether chains covalently linked to the N atom of pyrrolidinium cation rings. We report here on the synthesis and characterization of a series of alkyl-, ether-, and thioether-functionalized pyrrolidinium ILs with different anions. Target ILs were synthesized by reacting N-methylpyrrolidine with halogenated thioethers, followed by metathesis with fluorinated sulfonamide metal salts. The structures of the ILs were confirmed using  $^1\text{H}$  and  $^{13}\text{C}$  Nuclear Magnetic Resonance (NMR) spectroscopy. Physical properties studied include density, thermal profile, viscosity, and conductivity. Preliminary results reveal that at 25 °C, pyrrolidinium NTf<sub>2</sub> ILs with five atom side chains containing ether groups have the lowest viscosity (EOEmPyrr NTf<sub>2</sub>: 53 cP), compared to alkyl side chains (C<sub>5</sub>mPyrr NTf<sub>2</sub>: 90 cP) and thioether side chains (ESEmPyrr NTf<sub>2</sub>: 171 cP). This work is part of a larger collaborative project where we seek to examine the atomistic origin of viscosity by comparing ILs with alkyl, ether, and thioether side chains. Results are expected to make influential contributions in the design of ILs, optimized for large scale use in energy storage devices such as batteries. The work done at Brookhaven National Laboratory was supported in part by the Office of Basic Energy Sciences, Division of Chemical Science, Geosciences and Biosciences, under contract # DE-SC0012704.

CH7

**Development of Ionic Liquid & Solvate Ionic Liquid Electrolytes for Low Temperature Li-Metal Batteries.** Elijah Bernard, Elizabeth Biddinger, Michael Keating and Sharon Lall-Ramnarine\*. Chemistry Department, Queensborough Community College, Bayside, NY 11364; Chemical Engineering, The City College of New York; The Graduate Center of The City University of New York.

Lithium metal batteries containing non-flammable electrolytes are attractive less hazardous replacements to current lithium-ion batteries due to their higher theoretical capacity of 3862 mAh g<sup>-1</sup>. The limited energy density capacity of lithium-ion batteries becomes a challenge with increasing energy demands as technology advances. The high flammability of the organic electrolytes present in lithium ion batteries are also problematic. To address these issues, we are developing new electrolytes for safer, higher energy density lithium metal batteries. Our approach involves using a mixture of ionic liquids (ILs) and lithium-based solvate ionic liquid complexes (SILs). ILs, which are non-flammable, highly conductive, and possess wide electrochemical windows, are liquid salts below 100°C. SILs are a subclass of ILs consisting of high concentrations of lithium salts and glymes. For example, the SIL Li(G4)TFSI is an equimolar ratio of lithium bis(trifluoromethylsulfonyl)imide (LiTFSI) and tetraethylene glycol dimethylether (G4). In this work, SILs (containing varying ratios of G4) were mixed with equimolar amounts of pyrrolidinium based ILs containing varying ether functionalized side chains (1-3 repeating ether groups) structurally similar to glyme. The SIL-IL mixtures were characterized for physical and electrochemical properties including conductivity, viscosity and cyclic voltammetry. The mixtures were evaluated based on the ratio of

solvating oxygen to lithium ion ( $[O]/[Li^+]$ ) present in the mixture. SIL:IL mixtures (tertiary mixture) with a  $[O]/[Li]$  ratio = 5 had greater oxidative stability than their counterparts with  $[O]/[Li]$  ratios > 5 and compared to the SIL, Li(G4)TFSI (binary mixture). The phase transitions were measured from  $-85\text{ }^\circ\text{C}$  to  $120\text{ }^\circ\text{C}$  using Differential Scanning Calorimetry (DSC). Results reveal that adding ILs to the Li(G4)TFSI SIL suppresses the glass transition temperatures extending the liquid range of the electrolytes at lower temperatures.

CH8

**Modeling the Generation and Isolation of Radioisotopes in Nuclear Medicine.** Ling Lan Chen, Sumaiya Husain, Rex Taibu, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364; Physics Department, Queensborough Community College, Bayside, NY 11364.

Radioisotopes are naturally decaying atoms that have a wide range of uses in contemporary life. They are routinely used in nuclear medicine to diagnose and treat health conditions such as heart disease, thyroid disorder and cancer. The radioisotope most widely used in medicine is technetium-99m. It is used as a radioactive tracer allowing doctors to obtain images of organs like the heart, liver and lungs by detecting the gamma rays emitted when Tc-99m decays. Radioisotopes are also used for radiotherapy (treatment). Radioisotopes like Actinium-225 are important for targeted alpha therapy in the treatment of malignant tumors. These isotopes can be produced by generators or particle accelerators. However, they almost always need to be separated from other decay products. Ac-225 can be generated from a Thorium-229 generator but can only be isolated every nine weeks and needs to be separated from Ra-225. Ac-225 can also be produced more abundantly by a particle accelerator but requires several separation steps as many radioisotopes (including Ac-226 and Ac-227 are produced). In this project we are modeling a radioisotope generator system and subsequent separation of generator produced radioisotopes. A cesium-137 generator was used to produce barium-137m, which was separated from the parent Cs-137 isotope by "milking" a resin column. A Geiger counter was used to measure radioactivity over time and determine the half-life of the Ba-137m generated. The half-life was determined to be 151 seconds about 1% deviation from the known half-life of 153 seconds (2.55 minutes).

CH9

**Exploring Radioactivity in Common Building Materials.** Maha Almaflehi, Sharon Lall-Ramnarine\* and Paul Sideris\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

Many stones used in building materials can contain varying amounts of naturally occurring radioactive elements that emit radiation. Uranium-238, thorium-232 and potassium-40 are among the naturally occurring radioactive elements commonly found in stones used in building materials that can decay into the radioactive gas radon. Radon-222 forms by the alpha decay of radium-226, both of which are daughter nuclides in the U-238 decay chain. Radon is an odorless, colorless gas that can lead to lung cancer when inhaled in high doses. Granite is a naturally occurring stone whose durability and decorative appearance makes it a popular building material in homes and buildings. The amount of radiation emitted by granite or other stones and soil depends on the concentration of the unstable radionuclides (such as U-238, Th-232 and K-40) present in the materials, which can vary based on the geographical location where the stone

was obtained. In this project samples of granite distributed commercially in the United States, China, Qatar and Guyana were obtained and surveyed. A Geiger counter was used to measure radioactivity. Preliminary results from the U.S.A samples indicated that the Caravelas Gold sample exhibited the highest radioactivity, ranging from 112-218 counts per minute (cpm) for separate measurements, when background radiation ranged from 24-48 cpm. A Teledyne Flir Identifinder was also used to determine specific radioactive isotope present in each sample. Among the U.S.A samples, only the Caravelas Gold sample had a detectable amount of Ra-226. Trends in radioactivity obtained from the various samples surveyed will be presented. This project is based upon work supported by the NNSA Minority Serving Institutions Partnership Program under Award No. NA0004162. Any opinions, findings, and conclusions or recommendations expressed in this project are those of the authors and do not necessarily reflect the views of the DOE, NNSA, or the U.S. Government.

## CH10

**Identifying Sources of Background Radiation From Everyday Items.** Pedrocia De-Sosoo, Thrishamae Lumor, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

Background radiation is a natural and constant source of ionizing radiation emitted from our environment, including a variety of objects commonly found in our homes. In this project, a handheld survey meter was used to measure the amount of radiation, in counts per minute, from several commercial products. Among these were: sodium-free salt, fertilizer, bananas, sidewalk salt, vaseline glass, wristwatches, a smoke detector, thoriated welding rods, and gas lantern mantles. For select objects with relatively high radiation counts, a Teledyne Flir Identifinder 2 was used to identify the radioisotope. The Identifinder confirmed the presence of U-238, Th-232, and Am-241 in the vaseline glass, lantern mantle, and smoke detector respectively. This project is based upon work supported by the NNSA Minority Serving Institutions Partnership Program under Award No. NA0004162. Any opinions, findings, and conclusions or recommendations expressed in this project are those of the authors and do not necessarily reflect the views of the DOE, NNSA, or the U.S. Government.

## CH11

**Identifying Sources of Background Radiation From Everyday Items.** Pedrocia De-Sosoo, Thrishamae Lumor, Paul Sideris\* and Sharon Lall-Ramnarine\*. Radiation Safety Program, Queensborough Community College; Chemistry Department, Queensborough Community College, Bayside, NY 11364.

A common absorbent in cat litter is bentonite. Bentonite is a mixture whose components are predominantly swelling clays known as sodium- and calcium-montmorillonites. Clays and minerals can include radioisotopes that contribute to terrestrial radiation - a source of natural background radiation. In this project, a handheld survey meter was used to measure the radiation, in counts per minute, for several commercially available cat litter products. Preliminary results show that the background-corrected counts per minute ranged from 26-46. This project is based upon work supported by the NNSA Minority Serving Institutions Partnership Program under Award No. NA0004162. Any opinions, findings, and conclusions or recommendations expressed in this project are those of the authors and do not necessarily reflect the views of the DOE, NNSA, or the U.S. Government.



## Engineering Technology

ET1

**Monitoring Chlorine residual and other quality parameters of water from internal plumbing system by season and water demand.** David Cen and Ousmane Sy Savane\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

The chlorine residual in the water used for human consumption prevents microorganisms, bacteria, and other pathogens from contaminating the water as the chlorine residual provides an extra layer of protection. The Surface Water Treatment Rule (SWTR), from the USEPA (United States Environmental Protection Agency), requires that a detectable level of chlorine must be present in the water to disinfect it and prevent any possible recontamination that could potentially put at risk the consumer's health by diseases like dysentery or salmonella. The chlorine residual in the distribution water is significantly affected by both the bulk water and the distribution system condition. High water temperature, low water consumption-induced stagnation, and aging main distribution system have resulted in a significant loss of chlorine residual in the distribution water (Savane et al, 2019). This research focuses on evaluating the effects of the previously stated parameters on the internal plumbing water chlorine residual for a high occupancy institution, operated on a seasonal basis as a school. Water samples are collected two times per week throughout the seasons from different sampling points with different levels of water consumption within the intuition. Water samples are then analyzed for temperature using HQ40D with a temperature probe, and chlorine residual levels using a Colorimeter (HACH DR900), which accurately measures levels of chlorine present in the collected water samples. A detectable level of chlorine, as stated in the Surface Water Treatment Rule, in the water will prevent potential diseases and illnesses caused by the growth of microorganisms as chlorine acts as a disinfectant while also keeping the water safe for human consumption.

ET2

**Personality Recognition using MBTI model.** David Han and Guozhen An\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

Individual personalities, shaped by emotions, thoughts, and behaviors, significantly influence our life choices. From selecting academic majors to pursuing career paths and engaging in preferred sports, personality plays a pivotal role. For students struggling with major selection, understanding their personality type beforehand could provide valuable guidance, potentially saving them years of exploration. Recognizing this need, various automated personality recognition systems have emerged, with Big Five and MBTI being among the most popular. The Big Five model categorizes personality into five traits: Openness, Conscientiousness, Agreeableness, Neuroticism, and Extraversion. The MBTI model classifies personalities into 16 types based on four dichotomies: Introversiion/Extraversiion, Sensing/iNtuition, Thinking/Feeling, and Perceiving/Judging. However, the accuracy of automated personality recognition remains a concern, limiting its widespread acceptance. To enhance the reliability of these tools, researchers are exploring three deep learning modalities: text, audio, and visual, to extract meaningful data from individuals. Our research aims to collect relevant data, extract features using text modality, develop a machine learning algorithm, evaluate the model's performance, and compare our approach to existing methods.

ET3

**3D Printed Desk Lamp.** Michael Delva and Raymond Lam\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

The aim of the project was to create a three-part desk lamp assembly consisting of a base, an arc, and a head in the MT-492 course. SolidWorks computer aided design (CAD) software was employed for lamp design and three-dimensional (3D) printers for lamp manufacturing. Furthermore, each part had to have maximum dimensions of 4 inches by 3 inches by 2 inches and connections with the adjacent component. After using the CAD software to design the assembly and verify the connections, the model consisted of a clamp base, a straight arm with a light dial, and a flared head was chosen for 3D printing. The clamp base allows the lamp to connect to a plethora of surfaces, the lamp arm houses a dial to provide adjustable levels of light and the lamp head focuses the light from lightbulbs while adding visual flare. The three parts form a lamp assembly that serves as an interesting visual for a room while being practical. The lamp model also demonstrates 3D printing's ability to print complex geometries. Additive manufacturing, also known as 3D printing, offers the ability to produce geometries that traditional machining methods would have difficulty producing by conventional subtractive manufacturing methods. Rather than removing material from stock, 3D printers divide the model into sliced layers and build each layer upon the last. The model has surfaces that are curved in multiple directions, includes threaded components, and utilizes other unorthodox geometries that would make machining the part complicated. By building the lamp from the ground up rather than removing stock, additive manufacturing eliminates the typical challenges that come with conventional cutting machines.

ET4

**Leveraging High-Resolution Urban Canopy Datasets in New York City for Enhanced Weather Prediction.** Oscar Enamorado, Harold Gamarro and Dugwon Seo\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364, City College of New York, New York, NY 10031.

In urban environments such as New York City, there is a direct connection between the city's atmosphere and the way the city is constructed. It is necessary to represent the interactions between the atmosphere and its surroundings in the most accurate way possible to understand the issues currently at hand. Air pollution and energy consumption are some of many. Recently, high-resolution, sub-meter scale datasets have emerged that capture the three-dimensional architectural complexities of cities. Although these datasets have the potential to represent local characteristics more accurately, their practical application in numerical weather models has been limited by both availability and the need for specialized processing. In this study, we overcome these limitations by creating a high-resolution Urban Canopy Parameter (UCP) dataset focused on New York City. Our methodology employs data from the Primary Land Use Tax Lot Output (PLUTO) database which contains building characteristic data at a plot level for NYC. Variables such as the plan area ratio signify a relationship between the areas of buildings in a given location and the lot area they are in. Within the range of 0 to 1, the value of the plan area ratio indicates some characteristics of the location like building compactness. The plan area ratio being closer to 0 shows it is more of an open space where buildings are more spread out. Future work will show the map of New York City represented by these results.

ET5

**Smart Oximeter.** Carlos Cordero and Huixin Wu\*. Engineering Technology Department, Queensborough Community College, Bayside, NY 11364.

The Smart Oximeter project aims to develop an oximeter designed to help people facing blood pressure problems. This innovative device connects to a smartphone application through Bluetooth technology, and through the application you can control two types of modes on the device, the default mode and the customizable mode. The default mode incorporates preset regulations based on specific user characteristics such as age, gender, and medical history. When oxygen levels drop below the estimated range, the device will trigger an alarm. If the alarm is not acknowledged, the system will automatically send a text notification to a pre-selected emergency contact. Additionally, if the alarm persists, an alert will be sent to the emergency service. In contrast, custom mode is invaluable when a medical professional prescribes specific oxygen level requirements. If the oxygen level is not at its level established by the user's doctor, the device will take the next step depending on the setup in the application. If the oxygen level is at alarming levels, the application will activate the emergency protocols selected by the user. To establish the accuracy of the two modes, research will be conducted, collecting data from different databases containing information on blood oxygen levels and relevant individual characteristics. The goal is to obtain a diverse data set, allowing for more accurate device calibration for individual users. This information will be compiled and the effectiveness of the device will be analyzed. The potential impact of this device is significant, particularly considering recent global events such as the pandemic. Given the high vulnerability of older individuals and those with cardiovascular issues, our Smart Oximeter offers a proactive approach to prevent fatalities by monitoring oxygen level fluctuations.

## English

EN1

**My People.** Sabreen Qaisar and Brigitte Tilley\*. English Department, Queensborough Community College, Bayside, NY 11364.

I am presenting a poem named "My People". It talks about how immigrants feel when they encounter new challenges and try to fit in a new environment.

EN2

**Delving into Stephen Jay Gould's historical analysis of renowned painters Leonardo da Vinci and JMW Turner.** Angelo Yau and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

This presentation at the Undergraduate Research and Creative Works day will focus on giving an interpretation and analysis of the book "Leonardo's Mountain of Clams and the Diet of Worms" by Stephen Jay Gould. Specifically, my presentation will critique Gould's interpretations of two well known paintings: Leonardo's Mona Lisa, and JMW Turner's Fighting Temeraire. Gould shows in both cases that the dominant interpretation of the painting is incomplete. He shows that reference to each painter's larger body

of work gives a more complete understanding of the meaning of the painting, as does reference to the painter's life and times.

EN3

**The Mona Lisa's Background and the Saddest Picture Not Involving Human Pain: Leonardo's Theory of the Earth and JMW Turner's Enthusiasm for Technology.** Emilio Reynoso and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

My talk at the URCW Day panel on Modernity, Art, and Science will consider two interpretations of famous paintings made by the acclaimed humanist essayist and evolutionary theorist, Stephen Jay Gould. Gould asks us to look at the Mona Lisa of Leonardo and the Fighting Temeraire of JMW Turner not only from our present perspective but from within each painting's historical context. My talk will summarize each interpretation and argue that the biography of the artist casts a particularly illuminating light over our understanding of the paintings. Gould shows that the background of the Mona Lisa is like her figure. The natural background blends with her and illustrates the central idea of Leonardo's time and all his scientific inquiries documented in the Leicester Codex, that the earth was like the human body, our body a microcosm of the world; the Mona Lisa is mother nature. Similarly, pace the dominant reading of the painting as an elegy for the decommissioned battleship, The Fighting Temeraire, Gould shows that Turner's famous painting should be read as part of a series of enthusiastic paintings of cutting steam powered trainings, boats, and other modern conveyances. Turner's faith in progress is lost on modern viewers especially, due to greater skepticism towards ongoing technological advances.

EN4

**Painting the Whole Picture: Where Science Meets the Arts in the late essays of Stephen Jay Gould.** Taina Olivo and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

This presentation is based on a written discussion of two essays featured in the collection "Leonardo's Mountain of Clams and the Diet of Worms" by Stephen Jay Gould. It's basic task is to analyze the philosophy of Gould and how he applies this to his historical analysis of two famous paintings: Leonardo's Mona Lisa and JMW Turner's The Fighting Temeraire. The presentation emphasizes that art and science coexist and interact, and that Gould shows us the importance of this relationship for both enterprises and for the progress of civilization. It further notes the salience of Gould's historical perspective for interpreting famous cultural touchstones like the Mona Lisa and Turner's painting of the Fighting Temeraire. Gould's gives a more complete interpretation of each painting than is usually met with because he situates each in the life of the painter and their historical epoch more generally.

EN5

**The Professor, the Adjunct, and the "Research" Paper: An Analysis of current trends in the political economy of Higher Education.** Michael Ventouratos and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

The presentation concerns fraudulent journalism and how it affects the academic sphere. Specifically, the talk compares and contrasts the views and attitudes of different classes in the university and college teaching workforce. It uses this analytic frame to query the problems of contemporary higher education publishing and research fraudulence. It focuses on figures like Dan Ariely and Francesca Gino, two professors of "behavioral science" at prestigious business schools and economics departments whose research on honesty has been shown to have been either fabricated or manipulated to fit preconceived arguments from so-called "nudge" theory. Nudge theory became prominent during the Obama era, as a "libertarian paternalist" viewpoint that maintains ordinary people can be benignly coerced, or "nudged," into better decisions, like becoming more honest by signing the affidavit at the beginning of an important document instead of the end, as in Dan Ariely's now infamous and discredited "study." The essay also considers the increase in suspect academic journals and the accompanying threat to academic credibility as a whole stemming from the inflationary growth of quasi-academic journals.

EN6

**Academic Publishing and Research: Some Current Perspectives.** Maryam Balochi and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

This presentation concerns the issue of academic research and publishing and several problems and controversies regarding it that have emerged in recent years. I have consulted sources like the New York Times and The New Yorker magazine on this topic. I will discuss the cases of Duke economist Dan Ariely, Harvard economist Francesca Gino, as well as the larger erosion of trust in academic knowledge due to various causes, including the rapid increase in suspect, quasi-academic journals. The presentation offers an overall view of the rise and fall of stars in the field of behavioral science in particular, but explores wider issues with the problem of reproducing findings in general in the social sciences.

EN7

**Academic Publishing Yesterday and Today.** Michelle Yosopov and Matthew Lau. English Department, Queensborough Community College, Bayside, NY 11364.

This is a research presentation regarding two topics of controversy in recent academic news: the rise of suspicious and pseudo-scientific academic journals and the manipulation of research data by professors in the "behavioral sciences." The paper discusses the fraud of two prominent professors of business and economics - Francesca Nino and Dan Ariely - both of whom fabricated data in research into honesty. It then discusses the overall problem of credibility in academia today by considering the proliferation of suspect journals that resemble normal journals but lack their rigorous standards for publishing articles. A conclusion proposes how universities and their faculty can restore trust. It will be part of a panel at URCW day on the topic of publishing more generally in contemporary academia called: Trends to Consider in Contemporary Academic Publishing.

EN8



**Presentation and Discussion of the film The Five Demands.** Bibi Khan and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

This project consists of a presentation of, and Q and A facilitation following, a screening of the Five Demands. The film is a recent documentary about the history of student activism at CUNY. The film shows how CUNY students, using protest and civil disobedience, won the racial integration of the university in the late 1960s and early 1970s. The presentation of the film will consist of brief remarks beforehand and prepared questions to help audience and presenters create a discussion of the film and its significance after the screening.

EN9

**Presenter and Facilitator for a screening of the CUNY history documentary The Five Demands.** Conor Finley and Matthew Lau\*. English Department, Queensborough Community College, Bayside, NY 11364.

This project consists of speaking to introduce the film The Five Demands. The introduction will summarize key facts about the film and look at how and why the story remains relevant to students lives today. The second part of the project will be to assist in facilitating a discussion among audience members after the film screening. Questions will be prepared in advance to optimize this process.

EN10

**Merry-go-round of life.** Janeece Lamadieu and Alison Cimino\*. English Department, Queensborough Community College, Bayside, NY 11364.

A short poem written to relate to feelings of not measuring up to cultural, societal or parental expectations.

EN11

**The English Department's Welcome Read 2023 program: Student Works of Creative Activism.** Ilse Schrynemakers\*, Ian Kim, Tina Ramchad, Carolin Perez, Jonathan Santamo, Isaac Ruiz, Amarelle Alvarez, Maira Martinez, Janeece Lamadieu, Beth Counihan\*. English Department, Queensborough Community College, Bayside, NY 11364.

This poster presentation spotlights the works of creative activism submitted by first-semester students in English gateway courses as part of the Welcome Read program. The creators and organizers of the Welcome Read program intend to discuss components of the Welcome Read and its connection to the works of creative activism on display. The poster features student creativity--all inspired by reading this year's Welcome Read texts: several works of poetry; two designs for "get out the vote" posters, and one

sketch for a possible QCC Peace Memorial. Two students of Prof. Cimino, Ian and Janeece, will be present to put a spotlight on their creative work and engage with the audience.

## **Health, Physical Education, and Dance**

### HPED1

**Choreographing for the play "Church".** Katrina Weeks and Aviva Geismar\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

This semester I had the opportunity to choreograph a dance for the Theater Program production of the play "Church" directed by Professor Arthur Adair. This involved reading the play, meeting Professor Adair, planning the choreography, attending multiple rehearsals to work with the student actors, consulting with Professor Huggins and Professor Geismar, giving notes to the actors, revising the choreography, attending performances and more. My presentation for URCW day will be a video reflection on my process and what I learned from it.

### HPED2

**QCC Student Use and Understanding of Marijuana.** Kameron Ford, Schebania Catul, Jaci Hernandez, Ifrana TulTul, Danielle Bellafigliore, Antonette Paviera and Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

New York State legalized the recreational use of marijuana for people age 21 or over. Our research project will survey the marijuana use of QCC students. Our focus is to better understand who uses, and how often students are using marijuana. We want to find out what students know about marijuana, where they are getting their information, and how this affects their reasons for using marijuana.

### HPED3

**Effective Practices Used by QCC Students to Manage Stress.** Felicity Fernandez, Mahdi Mostofa, Han Ma, Reina Darcelly, Dominique Adrien and Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

All QCC students experience stress. Whether it's for an assignment deadline or the pressure of being on time, there's no denying that one of the biggest parts of a student's life is stress. The key is learning how to effectively manage that stress. The purpose of our research project is to determine how QCC students are currently managing their stress. We hope to learn from students effective stress management strategies that we can share with all students here at QCC.

### HPED4

**The Effect of Work on the Mental Health of QCC Students.** Rashmi Ramnarain, Usha Sharma, Adam Torres, Shil Patel, Dannabella Cuello and Edward Diller\*. Health, Physical Education, and Dance, Queensborough Community College, Bayside, NY 11364.

Many QCC students work full or part time while attending school. For our research project, we're interested in discovering how working while attending school affects students' mental health. According to a 2023 survey conducted by The Healthy Minds Study, which collects data from 373 campuses nationwide, student rates of depression; anxiety, and distress are increasing. Since a majority of QCC students do have a job our project focuses on how work might affect their mental health. We also hope to discover if students are practicing self-care to positively affect their mental health and if students are aware of the mental health resources and support services provided by QCC.

## History

### HI1

**Voices and Visions of Black Women during the Harlem Renaissance: A Cultural Analysis of Art and Written Works.** Aisha Frampton-Clerk and Emily Tai\*. History Department, Queensborough Community College, Bayside, NY 11364.

This research paper delves into the complex and multifaceted experiences of Black women during the Harlem Renaissance, a period of artistic and cultural flourishing in the 1920s. Focusing on the convergence of several visual, literary, and poetic art sources, this study explores the emerging new statuses, lifestyles, and conditions of Black women around the time of the Harlem Renaissance, spanning from the 1920s to the 1930s. By dissecting the works and inspirations of several influential Black female Harlem Renaissance artists, such as Augusta Savage and Jessie Redmon Fauset, I hope to gather a more cohesive image of the major social, cultural, political, and economic issues affecting Black women during the Harlem Renaissance, and analyze the ways in which these creative expressions served as both mirrors and windows into their lives. My project studies the following sources: *Sculpture in Stone: Negro Mother and Child* by Elizabeth Catlett, *Lift Every Voice* by Augusta Savage, *Gamin* by Augusta Savage, *An interview with Lois*, *Mailou Jones*, by Charles H Rowell, *Les Fétiches* by Lois Mailou Jones, *Madame Lilian Avanti* by Lois Mailou Jones, *Heart of a Woman* by Georgia Douglas Johnson, *To a Dark Girl* by Gwendolyn Bennett, *Poverty/Prayer* by Nancy Elizabeth Profit, *Strange Fruit* by Billie Holiday, *Ethiopia* by Meta Vaux Warwick Fuller, *Menelik* by Meta Vaux Warwick Fuller, *How it feels to be colored me* by Zora Neale Hurston, and *The Crisis* (cover) by Laura Wheeler Warring. I will be measuring these against secondary sources in an attempt to gain a more comprehensive understanding of the period.

### HI2

**Women in the Code of Hammurabi.** Davis Willis and Emily Tai\*. History Department, Queensborough Community College, Bayside, NY 11364.

The Code of Hammurabi is one of the earliest and most comprehensive written legal codes known in history, dating back to approximately 1754 BCE in ancient Mesopotamia under the Babylonian king; king Hammurabi. This paper delves into the significance, content, and impact of the Code, offering insights into its role in shaping legal and societal norms of its time. Specifically, I will be looking at how the code

outlines the lives of women. Among the 282 laws, One Hundred and forty-four states that "If a man take a wife and this woman give her husband a maid-servant, and she bear him children, but this man wishes to take another wife, this shall not be permitted to him; he shall not take a second wife." Women in this society were only viewed in the light that they could have children. Though women that were barren were seen as tolerable but of not much importance, the Code of Hammurabi still provided a path for them to ensure stability and companionship in this society. Here we observe the exception that a man is unable to obtain a second wife if his first wife is barren under the condition that the first wife provided a maidservant to be able to provide children for him. To assess the Codes of Hammurabi, I will be reviewing the website *Femme Fatale: Women During Hammurabi* by Grace Ibarra, and I will also be using the secondary source, *The Temple Women of The Code of Hammurabi* by D. D. Luckenbill which appeared in the journal, *The American Journal of Semitic Languages and Literatures* in 1917. It will also serve as the discussion used to compare my analysis of the code's evidence for the lives of women to the conclusions drawn by other scholars.

## **Kupferberg Holocaust Center**

\*KHC1

**KHC Exhibition Research - Photo Research for Ghettos and Transit Camps.** Borana Somen, Marisa Hollywood\*and Laura Cohen\*. Kupferberg Holocaust Center, Queensborough Community College, Bayside, NY 11364.

In this presentation, KHC Curatorial Intern Borana Somen shares research produced from three historic images taken in the Warsaw Ghetto, the Kovno Ghetto, and the Westerbork Transit Camp. Somen discusses the background and context in which these pictures were taken, the importance of the events and of the educational value of the images themselves, and provides insight into artifacts and testimony related to the images. The research produced by this project allows visitors of the KHC's exhibition - "The Concentration Camps: Inside the Nazi System of Incarceration and Genocide," to gain a deeper understanding of the section titled "Part 3: Creation of Ghettos and Expansion of Camps," through its utilization of personal stories.

## **Mathematics and Computer Science**

MA1

**Network-aware Load Balancing for Cloud Storage Systems using Time Series Forecasting Models.** Mohab Hussein and Esma Yildirim\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Load balancing services are one of the fundamental services offered by cloud providers to minimize the imbalance between multiple servers to improve system throughput or to reduce response time. A load-balancing policy tries to route incoming requests from clients to the best server possible to improve the reliability and availability of a service. In the case of cloud storage systems, multiple copies of data can reside in different storage servers, and applying the correct policy to select the best replica for a data transfer request is a challenging problem, especially without causing an imbalance in the system and with the constant changes in cloud network traffic conditions. The commonly used algorithms for load

balancing problems are round-robin, weighted round-robin, least connection, weighted least connection, and active monitoring algorithms. Weighted schemes are more suitable for heterogeneous or geographically distributed servers with different latencies, however deciding these weights is a challenging problem. In this project, we will design a data collection and prediction system based on multi-variate time series data and neural network models. We will conduct multiple parallel data transfers between Amazon Web Services (AWS) S3 cloud storage systems and EC2 compute clients and collect metric data regarding the storage servers such as data transfer rate and latency using AWS CloudWatch monitoring service. The collected multi-variate time series data will be stored in a NoSQL database service AWS DynamoDB and used to design a multi-step neural network model to predict the throughput and latency of future transfers for all storage servers. The predicted values will then be used to rank the storage servers (assign them weights) to design a dynamic and efficient load-balancing algorithm.

MA2

**Positive and Negative Mood Detection Using Sentiment Analysis on Literary Work of Middle Grade Students.** Stephanie Koester and Esmay Yildirim\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Sentiment analysis aims to identify text that contains sentiment, identify what the sentiment is and determine the overall polarity (negative or positive) of the text. It has many application areas such as social network analysis, opinion mining, even detection of psychological illnesses like depression. Studies show that the best type of written text to analyze for detection of positive and negative mood is informal texts. In this project, we will do sentiment analysis on a dataset that is scraped from a public web blog written by middle grade students. The dataset includes informal texts like essays, stories, poems, and fairy tales in Turkish. Although sentiment analysis has been done before on literary work written for children, to the best of our knowledge, it has never been done on literary work written by children. Therefore, the results of this research will be invaluable for the research community as well as school counselors. Sentiment analysis algorithms are either based on bottom-up machine learning approaches where algorithms learn to recognize sentiment by looking at example texts that have already been classified or ranked, while iteratively adjusting parameter values such that the algorithm's output matches the predetermined classification or top-down lexicon-based approaches where they use predefined dictionaries to identify sentiment words. In this project we will use a bottom-up approach and apply neural network and machine learning models to predict the overall sentiment (positive and negative) as well as existence of certain emotions that are effective in detecting positive and negative mood.

MA3

**Recursive Sequences as Solutions to a Generalized Pell equation.** Yilong Xiao and Andrew Bulawa\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Integer solutions to the Pell equation  $x^2 - 5y^2 = \pm 4$  are given by the Fibonacci and Lucas sequences, each of which obey a simple second order recursion relation. The goal of this project is to investigate the research that led to this theorem and adapt that work to generalize the result to a larger class of equations. The project includes finding the recursion relations that describe the integer solutions to these equations.



MA4

**Probability Concentration Bounds and Applications.** Shaman Mahmud and Wenjian Liu\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

The functions of large numbers of random variables tend to behave more predictably than their randomness suggests. It is well known from the laws of large numbers that the average of many independent random variables is asymptotically the expected value, while central limit theorem and large deviations techniques gives the asymptotic rate. Concentration analysis, a topic of intensive research in the last decades in a variety of areas, allows us to estimate how a random variable, under certain conditions, is distributed near its mean with high probability. In this project we are interested in sharper estimates for the deviation probability from the average or typical value. Then we will show how these inequalities are used in various areas of statistics, electrical engineering, information theory, and computer science like algorithms, networks, and machine learning.

MA5

**Mathematical Modeling of Infectious Diseases.** Shelby Brage and Susana Pinheiro\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Nearly four years have passed since COVID-19 was declared a Public Health Emergency. Yet, people, as well as governments, health care systems, and economies worldwide, remain in a vulnerable position. Though COVID-19 stretched us far beyond our limits, we were unprepared. Inequities glaring, the death toll is reaching 7 million. The unprecedented stress that healthcare workers endured led 30% of them to quit. Total global debt is at an historic high. Are we equipped for another hit? Conditions that could predict future outbreaks of disease or inform their prevention are therefore addressed in this work. Through the lens of a singular "flu season", we examine two co-circulating respiratory pathogens for which vaccines exist. An ordinary differential equations (ODE) model of the SIR type was developed to describe the spread of two such diseases, for example Influenza and COVID-19. For the purposes of this paper, we assume no co-infection and a closed system, as well as acquisition of full immunity via infection or vaccination.

MA6

**Adolescents' environmental experiences, mental health, and behaviors: exploration with Add Health data.** Zebin Zhang and Kostas Stroumbakis\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Adolescence is a challenging period, marked by complexity and uncertainty while transitioning to adulthood. Profound changes in physical, psychological, and cognitive aspects, shaped by individual environmental experiences, may have a pivotal impact on future societal integration, employment, and interpersonal interactions. In this study, we use data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) to explore relations among adolescents' environmental experiences, mental health, and behaviors. Ultimately, the results can be used to intervene or improve adolescent health problems and take preventive measures.

MA7

**Comparing the Performance of Classical Machine Learning Models with LSTM in Predicting Stock Prices.** Shackeyb Baguaei and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Predicting the behavior of the stock market is highly challenging due to the volatility. Therefore, a range of machine learning algorithms and tools have been used to build successful predictive models based on stock data. These algorithms select the best-fitting model from a specific set of functions, for the given input - output data. In [Alzaman], LSTM, a neural network model capable of handling time series, is utilized to predict the future stock price values. In this project, classical machine learning algorithms including linear, tree-based, and ensemble models will be built, and their performances will be compared with the performance of the LSTM models built in [Alzaman]. [Alzaman], Alzaman C., Forecasting and optimization stock predictions: Varying asset profile, time window, and hyperparameter factors, Systems and Soft Computing, 5, 2023.

MA8

**The Effects of Technical Indicators on the Prediction of Stock Prices.** Frank Desueza and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Investors use technical indicators to conduct technical analysis, comprehend stock price behavior, and gain insight into potential patterns within stock data. Hence, technical indicators are used to determine the entry and exit timing for trades. Therefore, technical indicators can also be regarded as features within input data for machine learning models used in predicting future stock prices or directions. In [Alzaman], the author used only four technical indicators: Moving Average, Exponential Moving Average, Moving Average Convergence Divergence, and Relative Strength Index. The literature encompasses numerous technical indicators, such as Percentage Price Oscillator, Stochastic Oscillator, Standard Deviation, On-Balance Volume, and Williams Percentage Change, which can also be used as features in input data. In this project, multiple sets of technical indicators will be used as features of the input data, and their impact on the performance of the LSTM models built in [Alzaman] will be observed. [Alzaman], Alzaman C., Forecasting and optimization stock predictions: Varying asset profile, time window, and hyperparameter factors, Systems and Soft Computing, 5, 2023.

MA9

**Forecasting and Optimization of S&P 500 Component Stocks.** Lei Han and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

Machine learning has been employed across diverse fields to build predictive models. While predicting stock prices or their directions is challenging due to their nature, numerous studies have demonstrated success in building effective models using machine learning algorithms and tools. In [Alzaman], historical

data from the stocks traded in Toronto Stock Exchange (TSE) is used to train machine learning models and predict future values or directions. It is important to assess if the methods employed in this paper can be used to build effective predictive models for stocks traded on various stock exchanges. S&P 500, a stock market index encompassing 503 common stocks issued by the largest 500 companies in the US, serves as the focus in this work. This project involves building predictive machine learning models for S&P 500 stocks and comparing their performance against models built using stocks from the TSE. [Alzaman], Alzaman C., Forecasting and optimization stock predictions: Varying asset profile, time window, and hyperparameter factors, *Systems and Soft Computing*, 5, 2023.

MA10

**Hyperparameter Optimization for Predicting Stock Market Behavior.** Dylan Soto and Yusuf Danisman\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

According to the Efficient Market and Random Walk hypotheses, stock prices cannot be predicted. Nevertheless, advancements in machine learning theory and rise in computational power have led to numerous studies demonstrating the predictability of stock market behavior. In a recently published paper [Alzaman], LSTM, which is a neural network model capable of handling time series, is used to predict the future values of stock prices and directions. Predictive machine learning algorithms, select a function from a specific set of functions to map input values to output values. Hyperparameters are used to expand or limit the size of the function set. This can be crucial to prevent memorization and enhance learning or generalization. In [Alzaman], a genetic algorithm, based on genetics and natural selection, is utilized to determine the optimal hyperparameter values. This project will employ and compare various hyperparameter tuning methods including grid search, Bayesian optimization, and hyperband, against the genetic algorithm. [Alzaman], Alzaman C., Forecasting and optimization stock predictions: Varying asset profile, time window, and hyperparameter factors, *Systems and Soft Computing*, 5, 2023.

MA11

**Fractional Schrodinger Wave Equation.** Mashtura Rahman and Lyubomir Boyadzhiev\*. Mathematics and Computer Science Department, Queensborough Community College, Bayside, NY 11364.

The project is about the fractional Schrodinger equation expressed in terms of the Caputo time-fractional and quantum Riesz-Feller space fractional derivatives. The special focus is on a Cauchy-type problem for the case when both, the Caputo and the quantum Riesz-Feller derivatives are of equal order. Naturally we refer to the equation as the Fractional Schrodinger Wave Equation (FSWE). By using the fractional Fourier and Mellin transforms, the solution of the problem stated is obtained in terms of the Fox H-function. Some cases of the general fractional Schrodinger equation are also discussed. It is shown that the fundamental solution of the FSWE contains the fundamental solution of the classical wave equation as a particular case.

## Nursing

NU1

**The Effectiveness of Artificial Intelligence in Early Prediction of Sepsis among Adult Patients: A Limited Literature Review.** Angela Sillas-Ramdath and Randelle Sasa\*. Nursing Department, Queensborough Community College, Bayside, NY 11364.

Sepsis is a life-threatening condition caused by the body's dysregulated inflammatory response to an infection. In a 2018 study by Paoli and colleagues, it was estimated that 970,000 cases of sepsis are admitted annually and causes over 50% of deaths in hospitals. Sepsis accounts for \$24 billion, or 13 percent of the total US hospital costs annually. Artificial intelligence (AI) or machine learning has been cited as a helpful clinical decision support (CDS) tool to diagnose sepsis. There is evidence to support that morbidity and mortality in patients with sepsis worsens with every hour that treatment is delayed. This led the proponents to conduct a limited literature review, with the aim of answering the question: "How effective is AI in early detection of sepsis among adult patients?" The search was limited to peer-reviewed journals in English, published from 2018 to 2023. After screening for relevance, five articles were included in this review. All the studies in this review offered evidence that AI algorithms in electronic health records detected sepsis and septic shock faster than healthcare providers, and AI tended to have better sensitivity and specificity. It was noted that the studies utilized different AI algorithms, as well as varying definitions and diagnostic criteria of sepsis. One study mentioned that patient cohorts being dominated by Caucasians may render AI algorithms less generalizable for diverse populations. The studies cited a need to: (1) further refine AI algorithms by adding more data; and (2) explore human factors to improve utilization of AI-driven CDS tools.

## Social Sciences

SS1

**Depths of Depression.** Daniella Iskhakov and Rosalinda Macaluso\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

This project is about Major Depressive Disorder with in depth exploration of the risk factors involved including parentification and bullying. These risk factors were investigated through theoretical research. The findings indicated that a large diversity of factors put individuals at risk. LGBTQ+ identity was found to be a significant risk factor. These findings indicate that there should be more support programs for mental health.

SS2

**A Cross-Generational Comparison of the Immigration/Post-Immigration Experiences of Korean Americans.** Christine Yoo and Amy Traver\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

With the increase of contemporary immigrants and their children since the 1980's came increased interest in the differences between first-generation immigrants and their subsequent generations (Zhou 1997). Research has shown that generation of immigration (e.g., 1st generation, 1.5 generation, 2nd generation, etc.) tends to impact immigrant adaptation, acculturation, family relations, and conflicts, as well as mental

health concerns in the U.S. context (Zhou 1997; Lee & Kye 2016). While there have been studies on the impacts of generation of immigration on the experiences of Asian Americans and Pacific Islanders (AAPI), little is known about these impacts within specific AAPI ethnic groups. The purpose of this project is to address this gap through a focus on Korean Americans. In this paper, I will review the literature on the impacts of generations of immigration, with a specific focus on outcomes associated with mental well-being and intergenerational relations. I will also outline preliminary findings from my analysis of oral history interviews with 1.5 and 2nd-generation Korean Americans, as preserved by The Korean American Legacy Project. I will conclude with a comparison between what was noticed from the literature on the impacts of generations of immigration on AAPI to discoveries from the oral history interviews with Korean Americans.

SS3

**Body Positivity and The Influence of Age Gender and Social Media Among College Students.** Shantal Edwards and Jody Resko\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

This study investigates the relationship among body positivity and college students. The research questions aim to understand if frequent social media use, gender differences and age correlates with lower levels of body positivity. Participants included 55 students from various psychology courses in a community college. The study utilized a survey/questionnaire method, employing the Body Self-Image Questionnaire Short-Form (BSIQ-SF) to measure body positivity. The following hypotheses guided the investigation: (1) college students who use social media more frequently would exhibit lower levels of body positivity compared to those who use it less frequently, (2) female college students would report lower levels of body positivity compared to male college students. (3) older college students would have higher levels of body positivity compared to younger college students. The results showed that contrary to the hypothesis (1), frequent social media use was associated with higher levels of body positivity, ( $M = 2.94$ ,  $SD = 0.47$ ), challenging the expected negative impact of social media on body image. Gender did not influence body positivity levels, disproving the assumption that females ( $M = 2.75$ ,  $SD = 0.58$ ) would report lower levels than male students ( $M = 3.01$ ,  $SD = 0.29$ ),  $t(41) = -1.57$ ,  $p = 0.06$ , however the differences were not statistically significant. Additionally, age showed no significant correlation with body positivity, refuting the hypothesis that older students ( $M = 2.84$ ,  $SD = 0.58$ ) would exhibit higher levels compared to younger students ( $M = 2.88$ ,  $SD = 0.50$ ),  $t(39) = 0.22$ ,  $p = 0.41$ . Overall, the findings did not support our predictions. However, these results contribute valuable information to the ongoing discourse on the role of social media in shaping body image perceptions, urging a reevaluation of assumptions and highlighting avenues for further investigation.

SS4

**Punitive, Punishment and Politics from the College Student Perspective.** Davia Willis and Celia Sporer\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.



The current demand for criminal charges against political figures raised questions about the appropriate use of the Criminal Justice System (CJS). This study proposes to begin to examine the issue by focusing on current college students' attitudes towards punishment and punitiveness in conjunction with political knowledge and commitments. Recruitment of 90 community college students to participate in a survey will be undertaken. The survey will focus on identifying the role that punitiveness and political attitudes play in influencing perception of events as either primarily political or justice related. These findings will provide an updated preliminary understanding of the connection between punishment, punitiveness and political commitment among the youngest voters and provide insight into future trends.

SS5

**Unraveling the Burden: Internalized Stigma and its Effects on Individuals Affected by Schizophrenia.** Shantal Edwards and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

Internalized stigma occurs when individuals with schizophrenia internalize the negative stereotypes and beliefs associated with their condition. This self-stigmatization can harm their well-being, self-esteem, and ability to seek social support. The purpose of this research is to investigate and highlight how internalized stigma can affect individuals affected by schizophrenia. It is believed that higher levels of internalized stigma will be associated with negative psychological outcomes, decreased self-esteem, and reduced social support among individuals with schizophrenia. The objectives of this research are to: Examine the relationship between internalized stigma and negative psychological outcomes among individuals with schizophrenia; Investigate the association between internalized stigma and decreased self-esteem in individuals with schizophrenia; and explore the link between internalized stigma and reduced social support among individuals with schizophrenia, highlighting the potential barriers to seeking and receiving support from others due to self-stigmatization.

SS6

**Mitigating the Legacy of Intergenerational Trauma in Korean Americans by Increasing Community Intervention and Mental Health Service Utilization.** Christine Yoo and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

The mental health disparity among Korean Americans is a cause for concern. Though the overall rates of mental illness are lower than most other groups, this pattern has been attributed to underdiagnosis and underreporting. Collectively, 25% of Asian Americans and Pacific Islanders sought mental health services in 2022. In the limited research conducted within the Korean American population, culture has been pinpointed as a culprit of the mental health disparity. However, due to acculturation, most 1.5 and 2nd-generation Korean Americans have been shown to adopt Western beliefs and values. Intergenerational trauma has been implicated as the propagating issue among Asian Americans and Pacific Islanders due to their own experience with historical trauma. The purpose of this study is to explore the impact of generational trauma in Korean Americans and observe the influence of a community intervention on mental health within this population.

SS7

**Aren't We On The Same Team? An Examination of How Gender Role Stereotypes Impact Performance Feedback in the Workplace.** Gina Renga and Anissa Moody\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

Performance feedback reviews are a crucial part of an individual's career path; the outcome of these reviews can be a promotion, a pay increase, and even employment status. For the reasons above, it's imperative for performance feedback reviews to have integrity and be free from bias or other factors that may unfairly influence them. Previous research has shown us that gender bias exists in the workplace, typically due to gender role stereotypes. This study examines gender bias in workplace settings by examining performance feedback reviews in different gender pairings. Participants of this study will consist of male and female managers who work in NYC-based corporate organizations. They will be asked to complete the Harvard Gender IAT, followed by a performance feedback questionnaire consisting of different KPIs to be ranked on a Likert scale. The results from each questionnaire will be categorized into four different gender pairings (FM > FE, FM > ME, MM > ME, MM > FE) to screen for potential bias. Despite in-group bias research telling us that women have a high preference toward other women and men have a lower preference toward other men, it is expected that maintaining gender stereotypes in a performance setting is more likely than in-group allegiances. This research will be a valuable and vital resource to I/O Psychologists and Human Resources professionals when discussing the validity of performance feedback reviews in their organizations.

SS8

**Speaking My Stakes: Identity-centered Self-advocacy as a Mediator of Health Equity for Individuals with Non-apparent Disabilities.** Joy Lee, Anissa Moody\* and Jody Resko\*. Social Sciences Department, Queensborough Community College, Bayside, NY 11364.

1 in 4 adults are disabled, of which 80% are non-apparent, comprising the largest minority in America (CDC). Non-apparent disabilities come with the privilege of "passing," making disclosure decisions identity formation milestones. The construct of disability is relational: how we see others compared with ourselves. This structure can seed internalized ableism, impacting one's perceived safety, affecting self-regard, and internalizing ableist norms. This study aims to measure the impacts of self-advocacy coaching and disclosure support on individuals with non-apparent disabilities. Existing qualitative research will be expanded upon in this study by quantifying the clinical outcomes of a self-advocacy intervention. Specifically, what are the clinical and qualitative impacts of an identity-affirming, self-advocacy intervention for individuals with non-apparent disabilities?