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STEP Conference 2019

THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

OFFICE OF HIGHER EDUCATION

The Office of Postsecondary Access, Support and Success
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Albany, New York 12234

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http://www.highered.nysed.gov/kiap/home.html

March 2019

Dear STEP Students, Staff and Other Conference Participants:

Greetings and welcome from the New York State Education Department, Office of Postsecondary Access, Support and Success, to the Annual Statewide STEP Student Conference *Shooting for the Stars: There's No Stopping STEP Scholars.* This annual event provides an opportunity for members of the Science and Technology Entry Program community to come together to share ideas, thoughts and visions of today and tomorrow.

Over the last 30 years STEP programs have provided a wide range of activities that are aimed at helping support and guide students through their secondary school experience. This year the STEP Statewide Student Conference shines a light on the out of this world success of STEP by showcasing student research, offering valuable workshops for all attendees, encouraging all to network in order to share ideas with each other, and providing an overall opportunity for all participants to come together and celebrate with each other. All attendees are encouraged to actively participate throughout the weekend in the galactic array of activities and events.

In closing, NYSED express our gratitude to the Statewide STEP Conference Committee, partners, and program staff whose astronomical hard work and dedication have allowed this opportunity for us to come together to celebrate all the STEP luminaries in New York State. Also, we thank the brilliant students for your dedication to STEP and commitment to continue your hard work in pursuit of your education and personal goals. Keep shining bright as there is no stopping STEP scholars!

Sincerely,

Kim S. Overrocker Joanna Heinsohn Jaime Miller

STEP Program Liaisons
Office of Postsecondary Access, Support and Success

Dear 2019 STEP Conference Participants,

Greetings and Welcome to the 21st Annual STEP Statewide Student Conference.

Over the past 30 years, STEP has been the silent, yet powerful resource that has helped to create thousands of doctors, lawyers, teachers, scientists, engineers, just to name a few, for our growing and competitive workforce. It is hard to believe that we are celebrating 30 years of excellence and existence, but as our theme ***"Shooting for the Stars: There's No Stopping STEP Scholars"*** suggests, we are *still on the move!* There are more institutions with STEP projects, more research projects and presentations, STEM guest speakers, internships and field trips. STEP has embraced the internet with our websites, digital journal, social media networks, and of course, #hashtag.

Many of you have been planning and working hard with your sights on this weekend. Now that you have accomplished your goal of getting here, enjoy the weekend's many activities, workshops and networking opportunities that have been planned with you in mind. Experience all that you can this weekend, for you are the next generation of STEMists who can draw inspiration and motivation from the many STEP alumni who are your beacons of light that have set the bar before you to inspire and motivate you to do greater things.

"When you step out of your comfort zone, you are stepping into your greatness!" -- Cynthia Chiam

We are proud of what you have accomplished and of what you will continue to accomplish in the near and distant future. We look forward to continuing the celebration of another 30 years of STEP!

2019 Statewide Student Conference Planning Committee

Briseida Cortez	Hostos Community College
Evonny Escoto	Fordham University
Lana James	Buffalo State College
Barbara Jones Jones	Mercy College
Diandra Jugmohan	Hostos Community College
Renee Mapp	SUNY Buffalo School of Medicine
Lucas Prime	Fulton Montgomery Community College
Cecelia M. Russo	St. John's University
Mary Stickney	SUNY Potsdam
Etwin Bowman	SUNY Albany (*Retired/Emeritus Member)*
Claudine-Lonje A. Williams	Syracuse University *(Emeritus Member)*
Dr. Leonese Nelson	Syracuse University - Chair

CONFERENCE PLANNING COMMITTEE

STEP Conference 2019

CONFERENCE CHAIR

Dr. Leonese Nelson	Syracuse University

SYRACUSE UNIVERSITY STAFF

Dr. Joanna O. Masingila	Professor and Interim Dean, School of Education
Dr. Leonese Nelson	Assistant Research Professor, School of Education Program Director, STEP and CSTEP
Tanaya Thomas-Edwards	Assistant Director, STEP Program
Denzel Hogan	Administrative Specialist, STEP Program
Alana D. Hughes	Program Coordinator, STEP Program
Arlaina C. Harris	Conference Assistant

STATEWIDE CONFERENCE PLANNING COMMITTEE

Briseida Cortez	Hostos Community College
Evonny Escoto	Fordham University
Lana James	Buffalo State College
Barbara Jones Jones	Mercy College
Diandra Jugmohan	Hostos Community College
Renee Mapp	SUNY Buffalo School of Medicine
Lucas Prime	Fulton Montgomery Community College
Cecelia M. Russo	St. John's University
Mary Stickney	SUNY Potsdam
Etwin Bowman	SUNY Albany ~ Retired/Emeritus Member
Claudine-Lonje A. Williams	New York University ~ Emeritus Member
Dr. Leonese Nelson	Syracuse University, Chair

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STEP Staff	

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CONFERENCE WEB MANAGER

Oluwaseun Olushoga

FLIPBOOK CREATORS

Technology Users Interface, Inc.

CONFERENCE PLANNING COMMITTEE

STEP Conference 2019

SUBCOMMITTEE MEMBERS

COLLEGE FAIR

Cecelia M. Russo	St. John's University, Co-Chair
Mary Stickney	SUNY Potsdam, Co-Chair
Jermaine Bolton	Iona College
Arlene Jackson	Suffolk County Community College

ENTERTAINMENT

Evonny Escoto	Fordham University, Co-Chair
Lana James	Buffalo State College, Co~Chair
Renee Mapp	SUNY Buffalo School of Medicine, Co-Chair
Etwin Bowman	SUNY Albany ~ Emeritus Member, Co-Chair
Claudine-Lonje A. Williams	Syracuse University ~ Emeritus Member, Co-Chair

RESEARCH POSTER PRESENTATION

Briseida Cortez	Hostos Community College, Co-Chair
Diandra Jugmohan	Hostos Community College, Co-Chair
Michelle Santana	Fordham University
Melissa Warrender	Albany Medical College

STAFF PROFESSIONAL DEVELOPMENT

Barbara Jones Jones	Mercy College, Chair
Leonie Gordon	Iona College
Dr. Moise Koffi	Hostos Community College
Lenore Schulte	SUNY New Paltz

STUDENT AMBASSADORS

Lucas Prime	Fulton Montgomery Community College, Chair
Valerie Rivera	Albany Medical College

STEP Student Ambassadors

STEP Conference 2019

Adelphi University	Melissa Zarate
Albany Medical College	Kirsty Inhenetu
Barnard College	Patrice Delgado
Baruch College	Kiara Ortiz
Binghamton University	Samuel Bazile
Borough of Manhattan Community College	Marcus Beggs
Bronx Community College	Darnell Smith
Buffalo State College	Jazmin Martin
City College of New York	Anna Nicole Dagdagan
College of Staten Island	Adetola Ajayi
Columbia University	Olivia Anderson
Cornell University	Karimah Adib-Jones
Farmingdale State College	Jaida Morgan
Fordham University - Lincoln Center	Daniela Zoquier
Fordham University- Rose Hill	Denilsa Palacios
Fulton Montgomery Community College	Ariana Gonzalez
Hofstra University	Amiyah Conley
Hostos Community College	Axel-Ryan Nzi
Icahn School of Medicine at Mount Sinai	Aaron Das
Iona College	Thyla Jarrett
John Jay College of Criminal Justice	Alex Guerrero
Kingsborough Community College	Bariat Bashiru
Le Moyne College	Shallythaw Da
Long Island University	Khalil Lovick
Mercy College	Adeye Jean Baptiste
Mohawk Valley Community College	Jose Luis DeJesus
New York Institute of Technology	Elissa Sainthil
New York University BEST Program	Marco Andrade
New York University	Lauren Guarneri

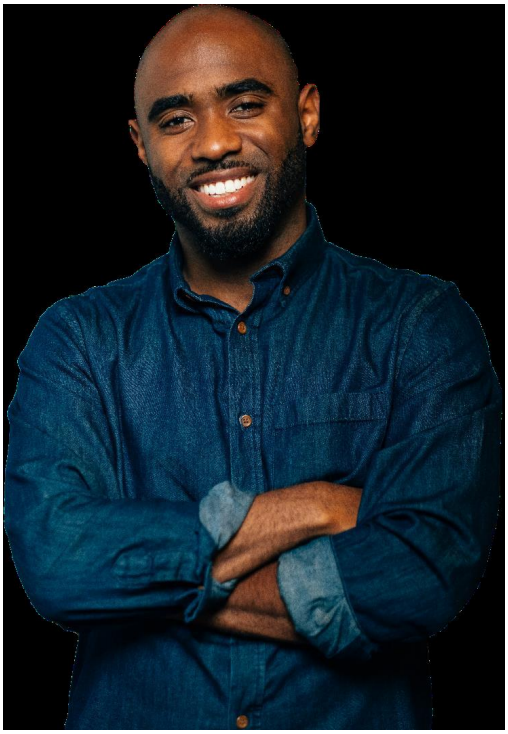
STEP Student Ambassadors

STEP Conference 2019

NYIT College of Osteopathic Medicine	Janice Cruz
Rensselaer Polytechnic Institute	Joshua Pinchinat
Rochester Institute of Technology	Arianna McKnight
St. John's University	Arthur Walker, Jr.
Suffolk County Community College	Jordan Fowler
SUNY Albany	Xavier McCarthy
SUNY Buffalo	Tremayne Fugua
SUNY Buffalo Jacobs School of Medicine	William Thomas, Jr.
SUNY Morrisville	Layton Sherman
SUNY New Paltz	Ashaureah Calame
SUNY Old Westbury	Belle Connaught
SUNY Potsdam	Julie Plastino
Syracuse University	Jayden Buckingham
University of Rochester School of Medicine and Dentistry	Jaeden Cortes

Keynote Address

STEP Conference 2019



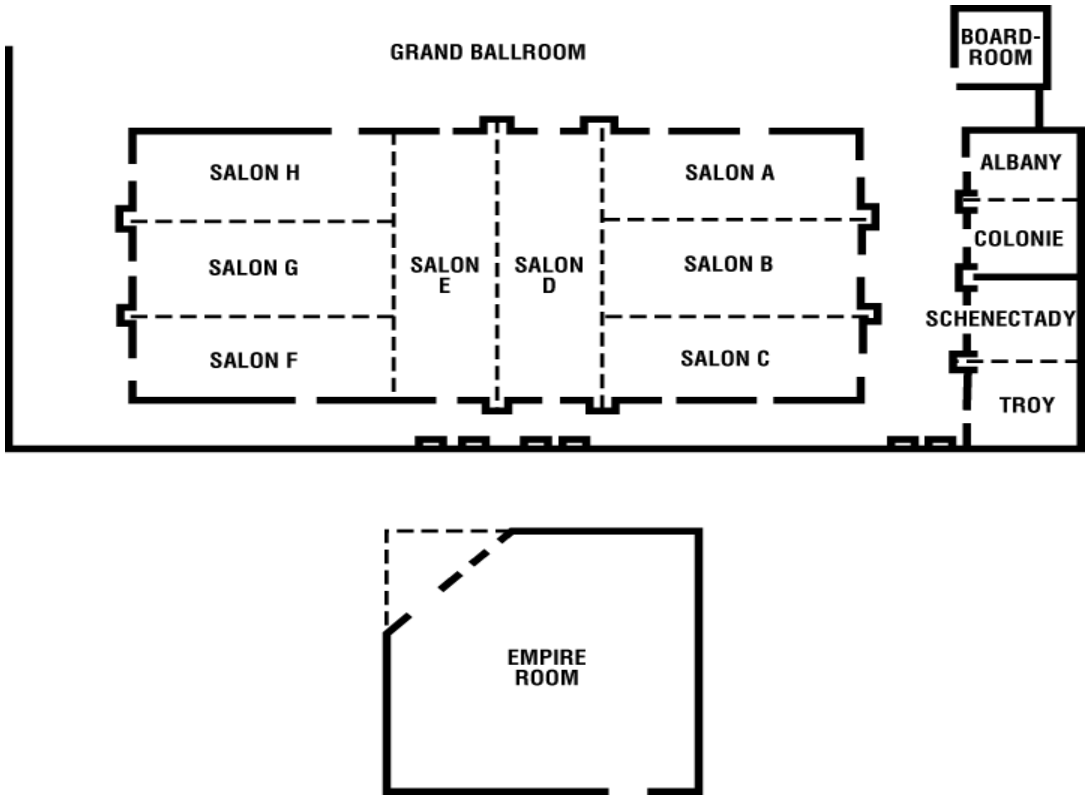
Dr. Nehemiah James Mabry

Dr. Nehemiah James Mabry is a Structural Engineer, STEM Educator, and Social Entrepreneur based in Raleigh, North Carolina. In 2012, while attending North Carolina State University as a graduate student, he founded STEMedia, Inc. STEMedia provides creative, inspirational, and educational content for the Science, Technology, Engineering, and Math (STEM) community. Since its inception, Dr. Mabry has won national awards, engaged audiences through public speaking, rendered guest lectures, and partnered with several organizations, businesses, and academic institutions in STEM outreach. An experienced academic, Dr. Mabry has researched at the National Aeronautics and Space Administration (NASA), and currently vocations as Bridge Design Engineer at Simpson Engineers & Associates.

Conference Center Map

STEP Conference 2019

Albany Marriott Hotel—Conference Center



Board Room = STEP Conference Headquarters

SCHEDULE AT A GLANCE

STEP Conference 2019

Friday, March 29th

TIME	ACTIVITY	ROOM
3:00pm~6:30pm	Conference Registration	Albany/Colonie
4:15pm~5:30pm	~STUDENT WORKSHOP~ "Self-Discovery Through the Joys of Journaling" Douglas Goodbee	Salons A and B
4:15pm~5:30pm	~STUDENT WORKSHOP~ "Scholars Just Want to Have Fun: Tips on How to Become a Leader on Campus within your Freshman Year" Jean Leandre	Schenectady/Troy
4:15pm~5:30pm	Meet and Greet with the New York State Education Department STEP Program Liaisons and Program Administrators	Market Restaurant
6:30pm~8:15pm	Buffet Dinner	Ballroom Salons
7:15pm~8:15pm	STEP Pep Rally/Roll Call	Ballroom Salons
8:30pm~9:30pm	Student Ambassadors Meeting	Albany/Colonie
8:30pm~9:30pm	Student Poster Presenters Meeting • 8:30pm—8:55pm Institutions A—M • 9:05pm—9:30pm Institutions N—Z	Schenectady/Troy
9:00pm~11:00pm	Student Photo Booth	Registration Foyer
9:00pm~11:00pm	Coffee House/Talent Show	Empire Room
9:15pm~9:45pm	Conference Briefing for STEP Administrators and Chaperones	Salon C
9:30pm~11:00pm	~~STUDENTS CODING WORKSHOP~~ **"Tech Time: Coding, Gaming, Virtual Reality and More!"** Rensselaer Polytechnic Institute Coding && Community Group	Salons D and E
9:30pm~11:00pm	Zumba Class	Salons A and B
9:30pm~11:00pm	**"Glow in the Dark"** Yoga Class	Salons F and G
9:30pm~11:00pm	APACS, Inc. Reception (Adults Only) (This event **is not opened** to the STEP students.)	State Room

Schedule At A Glance

STEP Conference 2019

Saturday, March 30th

Time	Activity	Room
7:30am~8:30am	Breakfast	Salons DEFGH
8:30am~8:45am	Plenary Session	Salons DEFGH
8:30am~8:50am	Student Poster Display Drop-off	Empire Room
9:00am~10:30am	Conference Registration	Board Room
9:00am~10:15am	Student Concurrent Workshop Sessions	Salons A and B Salon C Albany/Colonie Schenectady/Troy
9:30am~11:30am	**Professional Development** **Administrators & Chaperones** "Creatively Inspiring Your Students in STEM" Dr. Nehemiah James Mabry STEMedia, Inc.	Market Restaurant
9:30am~11:00am	Judges' Meeting for Student Research Poster Competition	State Room
10:30am~11:45am	Student Concurrent Workshop Sessions	Salons A and B Salon C Albany/Colonie Schenectady/Troy
12:15pm~1:30pm	Buffet Lunch	Salons DEFGH
1:15pm~1:45pm	College Fair Setup	Salons A, B and C
1:30pm~2:00pm	**Student Research Poster Competition** *Presenters Report for the Competition*	Empire Room Market Restaurant
2:00pm~4:00pm	**12th Annual STEP College Fair**	Salons A, B and C
2:00pm~5:00pm	Student Research Poster Competition	Empire Room Market Restaurant
2:20pm~2:50pm	Program Exploration Poster Setup	Albany/Colonie
3:00pm~4:15pm	**Student Networking Event** Inaugural Program Exploration Poster Session	Albany/Colonie

Schedule At A Glance

STEP Conference 2019

Saturday, March 30th *(continued)*

Time	Activity	Room
6:30pm~8:30pm	**Celebratory Dinner & Keynote Address** **Keynote Address** Dr. Nehemiah James Mabry STEMedia, Inc.	Ballroom Salons
9:30pm~11:00pm	Zumba Class	Empire Room
9:30pm~11:00pm	Board Games	Schenectady/Troy
9:30pm~11:00pm	Movie	Salon F
9:30pm~11:00pm	STEP STEM-Wood	Albany/Colonie Ballroom Foyers F, G and H
9:30pm~12:00am	Party	Salons A, B and C

Sunday, March 31st

Time	Activity	Room
8:00am~9:30am	Breakfast	Salons DEFGH
9:00am~10:15am	**Closing Plenary Session** **Awards Ceremony** Student Research Poster Competition Closing Remarks	Salons DEFGH
10:30am~11:15am	Check-Out and Departure	Hotel Lobby

Conference Schedule

Friday, March 29th

3:00pm~6:30pm

Conference Registration
Albany/Colonie

Student Concurrent Workshop Sessions

4:15pm~5:30pm

Presenters	Rooms	Workshop Titles
Douglas Goodbee	Salons A & B	"Self-Discovery Through the Joys of Journaling"
Jean Leandre	Schenectady/Troy	"Scholars Just Want to Have Fun: Tips on How to Become a Leader on Campus within your Freshman Year"

4:15pm~5:30pm

Meet and Greet the New York State Education Department STEP Program Liaisons
Christopher Denner, Joanna Heinsohn, Jaime Miller, and Dr. Kim Overrocker
Market Restaurant

6:30pm~8:15pm

Buffet Dinner
Ballroom Salons

7:15pm~8:15pm

STEP Pep Rally/Roll Call
Ballroom Salons

8:30pm~9:30pm

Student Ambassadors Meeting
Albany/Colonie

8:30pm~9:30pm

Student Poster Presenters Meeting
Schenectady/Troy

8:30pm—8:55pm Institutions A—M
9:05pm—9:30pm Institutions N—Z

Conference Schedule

Friday, March 29th (continued)

9:00pm~11:00pm
Student Photo Booth
Registration Foyer

9:00pm~11:00pm
Coffee House/Talent Show
Empire Room

9:15pm~9:45pm
Conference Briefing for STEP Administrators and Chaperones
Salon C

9:30pm~11:00pm
Students Coding Workshop
"Tech Time: Coding, Gaming, Virtual Reality and More!"
Rensselaer Polytechnic Institute Coding && Community Group
Salons D and E

9:30pm~11:00pm
Zumba Class – Edelika Becker
Salons A and B

9:30pm~11:00pm
"Glow in the Dark" **Yoga Class – Douglas Goodbee**
Salons F and G

9:30pm~11:00pm
APACS Reception (Adults Only)
State Room

This event is sponsored by the Association for Program Administrators of CSTEP and STEP, Inc. (APACS) and **is not opened to the STEP students. **

Conference Schedule

Saturday, March 30th

7:30am~8:30am
Breakfast
Salons DEFGH

8:30am~8:45am
Plenary Session
Salons DEFGH

8:30am~8:50am
Student Poster Display Drop-Off
Empire Room

9:00am~10:30am
Conference Registration
Board Room

Student Concurrent Workshop Sessions

9:00am~10:15am

Presenters	Rooms	Workshop Titles
Grace Roller Justin Choi Ethan Graf	Salons A & B	"Introduction to Creating Your Online Presence"
Stephanie Jackman	Salon C	"Bullying: What Is Your Role?"
Dr. Kathleen Kavanagh Ben Galluzzo	Albany/Colonie	"How to Tackle Big Projects: Mind-mapping and Beyond"
Dr. Ahsan Ali	Schenectady/ Troy	"The Secrets of College and Medical School Success!"

9:30am~11:30am **Market Restaurant**

~~Professional Development~~
Administators & Chaperones

"Creatively Inspiring Your Students in STEM"

Dr. Nehemiah James Mabry
STEMedia, Inc.

Conference Schedule

Saturday, March 30th *(continued)*

9:30am~11:00am

Judges' Meeting for Student Research Poster Competition
State Room

Student Concurrent Workshop Sessions

10:30am~11:45am

Presenters	Rooms	Workshop Titles
Mac-Arthur Louis	Salons A & B	"Introduction To Cybersecurity"
Tanaya Thomas	Salon C	I Am Happy to Be Me!"
Ashley Solomon Janice Hunt	Albany/Colonie	"Habits of a Successful Student"
Kenneth Marshall	Schenectady/ Troy	"Effective Communication Skills for Multidisciplinary Scientific and Engineering Research"

12:15pm~1:30pm

Buffet Lunch
Salons DEFGH

1:15pm~1:45pm

College Fair Setup
Salons A and B

1:30pm~2:00pm

Student Research Poster Competition
Presenters Report for the Competition
Empire Room & Market Restaurant

2:00pm~4:00pm

12th Annual STEP College Fair
Salons A, B and C

Conference Schedule

Saturday, March 30th *(continued)*

2:00pm~5:00pm

Student Research Poster Competition
Empire Room & Market Restaurant

The Student Research Poster Competition will be open to the public at 4:00pm.

2:20pm~2:50pm

Program Exploration Poster Setup
Albany/Colonie

3:00pm~4:15pm

Student Networking Event
Inaugural Program Exploration Poster Session
Albany/Colonie

6:30pm~8:30pm

Celebratory Dinner & Keynote Address
Ballroom Salons

Keynote Address
Dr. Nehemiah James Mabry

9:30pm~11:00pm

Zumba Class – Edelika Becker
Empire Room

9:30pm~11:00pm

Board Games
Schenectady/Troy

9:30pm~11:00pm

Movie
Salon F

9:30pm~11:00pm

STEM-wood
Albany/Colonie
Ballroom Foyers F, G and H

9:30pm~12:00am

Party
Salons A, B and C

Conference Schedule

Sunday, March 31st

8:00am~9:30am

Breakfast

Salons DEFGH

9:00am~10:15am

Closing Plenary Session

Salons DEFGH

Awards Ceremony

Student Research Poster Competition

Closing Remarks

10:30am~11:15am

Check-Out and Departure

Hotel Lobby

PARTICIPATING STEP PROGRAMS

STEP Conference 2019

Adelphi University	Mercy College
Albany Medical College	Mohawk Valley Community College
Barnard College	Morrisville State College
Baruch College	Mt. Sinai School of Medicine
Binghamton University	Nassau Community College
Borough of Manhattan Community College	New York City College of Technology
Bronx Community College	New York Institute of Technology
Buffalo State College	New York University / BEST Program
City College of New York	Nyack College
Clarkson University	NYIT College of Osteopathic Medicine
College of Staten Island	Pratt Institute
Columbia University	Rensselaer Polytechnic Institute
Cornell University	Rochester Institute of Technology
Farmingdale State College	St. John's University
Fordham University Lincoln Center & Rose Hill	Stony Brook University
Fulton Montgomery Community College	Suffolk County Community College
Hofstra University	SUNY Albany
Hostos Community College	SUNY Buffalo
Iona College	SUNY Buffalo School of Medicine
John Jay College	SUNY College at Old Westbury
Kingsborough Community College	SUNY New Paltz
LeMoyne College	SUNY Potsdam
Long Island University	Syracuse University
Medgar Evers College	University of Rochester

College Fair Participants

STEP Conference 2019

Institutions	Representatives
Adelphi University	Sabita Nayak CSTEP/STEP Director
Buffalo State College	Yanick H. Jenkins Director, EOP
Clarkson University	Kathleen Kavanaugh Professor
Cornell University	Margaret Corey & Craig Wander Alumni
Fordham University	Mariah Asencio Admissions Counselor
Fulton-Montgomery Community College	Mimi Eglin Admissions Counselor
John Jay College of Criminal Justice	Christopher Valentino Assistant Director of Recruitment
Mohawk Valley Community College	Ushona McLean CSTEP/STEP Coordinator
New York Institute of Technology	Linda Spangler Admissions Advisor
New York University	Anna Ortega Chavolla Senior Director, STEM
Rensselaer Polytechnic Institute	Hanif Cropper Admissions Counselor
Rochester Institute of Technology	Bruce Duncan Admissions Representative
St. John's University	Albert Rodriguez Admissions Counselor

College Fair Participants

STEP Conference 2019

Institutions	Representatives
Stony Brook University	Dr. Christine Veloso Co-Director STEP/CSTEP
SUNY College of Environmental Science and Forestry	Susan Sanford Director of Admissions
SUNY Old Westbury	Sara Taiclet Associate Director of Admissions
SUNY Potsdam	Mike Lahendro Admissions Advisor
Syracuse University	Christopher Maldonado Career Advisor
The Sage Colleges	Amanda Miller Senior Assistant Director of Enrollment Management and International Recruitment
University at Albany	JR Gaige Associate Director of Admissions
University of Rochester	Dr. Adrienne Morgan Assistant Dean for Medical Education, Diversity and Inclusion
Vaughn College of Aeronautics and Technology	Celso Alvarez Associate Vice President of Enrollment

INAUGURAL PROGRAM EXPLORATION POSTER SESSION

STEP Conference 2019

Participating Institutions

Albany Medical College

Bronx Community College

Columbia University

Cornell University

Fordham University – Rose Hill

Fulton Montgomery Community College

John Jay College of Criminal Justice

Le Moyne College

Medgar Evers College

Rochester Institute of Technology

SUNY Albany

SUNY Buffalo

SUNY College at Old Westbury

St. John's University

Syracuse University

Workshop Presenters Schedule

Friday, March 29th

4:15pm~5:30pm

Presenters	Rooms	Workshop Titles
Douglas Goodbee	Salons A & B	"Self-Discovery Through the Joys of Journaling"
Jean Leandre	Schenectady/Troy	"Scholars Just Want to Have Fun: Tips on How to Become a Leader on Campus within Your Freshman Year"

STUDENTS CODING WORKSHOP

9:30pm~11:00pm

Moderators	Rooms	Workshop Title
Rensselaer Polytechnic Institute Coding && Community Club	Salons D and E	**"Tech Time: Coding, Gaming, Virtual Reality and More!"**

Saturday, March 30th

9:00am~10:15am

Presenters	Rooms	Workshop Titles
Grace Roller Justin Choi Ethan Graf	Salons A & B	"Introduction to Creating Your Online Presence"
Stephanie Jackman	Salon C	"Bullying: What Is Your Role?"
Dr. Kathleen Kavanagh Ben Galluzzo	Albany/Colonie	"How to Tackle Big Projects: Mind-mapping and Beyond"
Dr. Ahsan Ali	Schenectady/ Troy	"The Secrets of College and Medical School Success!"

Workshop Presenters Schedule

Saturday, March 30th *(continued)*

9:30am~11:30am

Presenters	Room	Workshop Title
Dr. Nehemiah Mabry	Market Restaurant	~~ Professional Development~~ (Administrators & Chaperones) "Creatively Inspiring Your Students in STEM"

10:30am~11:45am

Presenters	Rooms	Workshop Titles
Mac-Arthur Louis	Salons A & B	"Introduction To Cybersecurity"
Tanaya Thomas	Salon C	I Am Happy to Be Me!"
Ashley Solomon Janice Hunt	Albany/Colonie	"Habits of a Successful Student"
Kenneth Marshall	Schenectady/ Troy	"Effective Communication Skills for Multidisciplinary Scientific and Engineering Research"

WORKSHOP PRESENTERS

STEP Conference 2019

The Secrets of College and Medical School Success!
Dr. Ahsan Ali
Mohawk Valley Community College

If you want to get a head start on college and medical school success while still a high school student, this workshop is for you! I will share tips and resources to help make you a competitive candidate for college and medical school. As an alumnus, I bring a wealth of experience that will provide experiential insight to help you achieve academic success. I will touch on qualities of a successful student, and ways to balance personal well-being with academic success. The workshop will also focus on the journey of a college and medical student, and what you should do to prepare for college and medical school while still completing high school. I will share tips for academic success that include standardized exam preparation, study skills, and most importantly, time management skills. Students should come prepared to ask questions, share experiences, and discuss any academic issues they may face.

Self-Discovery Through the Joys of Journaling
Douglas Goodbee
Roots for Life Yoga

Students, come tap into your creative potential! You will be asked a series of thought-provoking questions that will require a deeper set of listening skills. Your answers to these questions will hopefully come from your heart and soul, and be transferred like streams of conscious energy to the intelligence in your hands. You hold a unique, uncensored, nonjudgmental, creative intelligence inside of you that can help to create the world in which you want to live! Scientific data has proven that there are many benefits from journaling when one writes thoughts and emotions on paper—it relieves stress and anxiety, strengthens grammar and communication skills, and it is fun and liberating!! It is also used as a tool for meditative relaxation therapy. And who would not welcome the benefits of the above in our fast-paced world?

Bullying: What Is Your Role?
Stephanie Jackman
Counseling at Stephanie Jackman, LCSW, MS

This is an interactive workshop where participants will learn the implications of bullying by doing. Participants will be provided written resources on bullying. Through a PowerPoint presentation, and participant interactive role plays, participants will engage in learning What is bullying? Who are victims of bullying? Who are bullies? Role play scenarios will engage the participants in cyber, verbal, physical, and emotional bullying. Participants will actively play the role of bully/ies, the victim(s), and/or bystander(s). Props will be utilized to reinforce the learning process. We will explore the impact of bullying on one's mental health (suicide, depression, low self-esteem). We will problem solve and debrief each role play with peer feedback; what do you do if you witness bullying? What do you do if you have been bullied? And what do you do if you are a bully? Lastly, we will explore the concept of 'snitching,' as it relates to bullying.

WORKSHOP PRESENTERS

STEP Conference 2019

How to Tackle Big Projects: Mind-Mapping and Beyond
Dr. Kathleen Kavanagh and Ben Galluzzo
Clarkson University

Large, long-term projects are becoming more common in school curriculum—in areas such as middle school science fairs, high school social studies classes, and a wide range of college courses. As a student, it can be challenging, intimidating, and confusing to simply get started! This hands-on workshop provides strategies to tackle projects from the beginning to the end. We introduce the idea of mind-mapping to guide brainstorming, and to provide a visual structure that shows how an open-ended problem or project can unfold. You will create your own mind-map based on a real-word, open-ended question that you are curious about. We also provide ideas and tips for taking your brainstorming ideas and turning them into a final product, such as a report or a presentation. These strategies can be used not only within school, but to help make important, informed decisions throughout your life.

Scholars Just Want to Have Fun: Tips on How to Become a Leader on Campus Within Your Freshman Year!
Jean Leandre
Mohawk Valley Community College

The balance between being a leader on campus and a student can be challenging. In this interactive session, students will get tips on how to navigate their first semester of college. Tips and tricks for being a student and a leader will be explored. STEP-ers who participate will learn about the many ways they can become engaged on campus, travel the world for free, and create a home away from home.

Introduction to Cybersecurity
Mac-Arthur Louis
Sage College of Albany

Cybersecurity is experiencing a severe shortage of talent today. Research shows that the global cybersecurity workforce will have more than 3 million unfilled positions by 2021. In this era of technical modernization, protecting digital assets and intellectual property have become a challenge for many organizations where external hacking has been the primary cause of data loss. Machine learning (ML) algorithms have played a pivotal role in several usage cases of cybersecurity. The success of deep learning (DL) in various big data fields has drawn interests in the cybersecurity fields. An introduction to cybersecurity is presented to: (1) simplify and encourage life-long learners to explore this emerging trend; (2) better understand the concept of cybersecurity and incorporate your skills to improve security measures in a field that can be applied to many different industries; and (3) create new opportunities and educational choices given the surge in the demand for skilled workers.

WORKSHOP PRESENTERS

STEP Conference 2019

Effective Communication Skills for Multidisciplinary Scientific and Engineering Research
Kenneth Marshall
Laboratory for Laser Energetics--University of Rochester

The multidisciplinary nature of science and engineering research makes it absolutely vital that students pursing careers in science or engineering develop strong skills to effectively and succinctly communicate concepts, research results, and technology developments to broad audiences that can range from research collaborators to the general public. This workshop will focus on methods that can be used by students at nearly every educational level to "get ideas across" in a manner that will be clear, concise, and able to be understood by audiences with widely varying educational backgrounds and technical interests. Topic areas to be covered include: (1) what and how much material to put on presentation slides; (2) "do's" and "don'ts" when presenting; (3) proper use of color and visuals on slides; (4) why using note cards during a presentation is a bad idea; and (4) methods for keeping your audience engaged and interested.

Instroduction to Creating Your Online Presence
Grace Roller, Justin Choi, and Ethan Graf
Rensselaer Polytechnic Institute

This Coding&Community workshop for 10th-12th graders focuses on developing an online presence by creating a personal website with a resume. You will gain skills from web development and learn about the importance of having an online presence. Instructors will lead students through the basics of web development, HTML, and CSS, and have students make Github accounts where they can host their websites for free. The remainder of the session will be dedicated to students building their websites. Starter code and templates will be provided so that students can create their websites more quickly while still being able to practice what they learned through customizations. Students can continue to work on the website and include the link to their website in college and scholarship applications. Use your own laptop, or one of ours; we will be around all afternoon to assist students with any questions they have!

Habits of a Successful Student
Ashley Solomon and Janice Hunt
SUNY Buffalo

Students are generally expected to graduate from high school and begin their life journey; so, preparation is needed to reach a successful outcome. Practicing productive habits like time management, planning, and organization should manifest themselves in behaviors such as good decision-making, self-confidence, healthy relationships, and more. Proper habit development, practice, and goal-setting during a student's high school career will provide them with the skills needed to be successful in college, career, and life. The objective of this workshop is for students to leave feeling equipped, energized, and empowered to identify the habits that are needed to change, adopt new habits, improve, and set SMART goals. Their goals will help them to maintain focus and be accountable. During this workshop students will increase their understanding of the importance of their daily choices, and the impact of these choices on future goals.

WORKSHOP PRESENTERS

STEP Conference 2019

I Am Happy To be Me!
Tanaya Thomas
Syracuse University

This workshop will assist participants with understanding the importance of healthy self-esteem. Participants will connect their goals and plans with how they treat themselves, and think about the ways in which they may place limitations on themselves because of the judgement of others. Participants will create goals and practice methods to honor themselves. 'I Am…' statements will be created to help participants state who they are or believe themselves to be. There will be a discussion on how to process emotions that can alter goals or lower self-esteem. The benefits of daily reflection and ways to use reflection to assess where you are, where you would like to be, and to bridge the gap to get there, will be practiced. Upon completion of the workshop students will have the necessary tools for healthy self-esteem. There will also be an opportunity for discussion at the end of the session.

Poster Presentation Judges

STEP Conference 2019

Judges	Affiliations
Dr. Ahsan Ali	Mohawk Valley Community College
Shirley Barrera	SUNY Old Westbury
Felicia Blaise	Trailblaiser Enterprise, Inc.
Dr. Charrai A. Byrd	New York City Society of Health System Pharmacists
Christopher Copeland	New York Power Authority
Jackie Copeland	New York Power Authority
Monyuette Y. Coplin	SUNY Buffalo
Leslie Gregg	Rochester Institute of Technology
Veronica Jennings	Newsday
Tanya Johnson	Buffalo State College
Dr. Fletcher Jones	Mercy College
Raysean Khalif	Syracuse University
Dr. Kristi LaMonica	The Sage Colleges
Carrie Ann Miller	Stony Brook University
Gwendolyn Munn	Regeneron Healthcare Solutions
Dr. Kim Overrocker	New York State Education Department
David Overrocker	PAR Government/AFRL
Manita Pavel	Borough of Manhattan Community College
Patricia Roccanova	SUNY College at Old Westbury
Heather Storti	Rochester Institute of Technology
Ignatius Tan	New York University

STUDENT POSTER ABSTRACTS

STEP Conference 2019

Biological/Life Sciences

POSTER 2
Immunotherapy Revolutionizes Cancer Treatment
Mohammed Ali Khan, Jessica Uraga, and Savion Reid
College of Staten Island

POSTER 3
Investigation of the Protein-Protein Interaction Between HPV16 L2 and Histone H2B
Alesha Alli
Fordham University--Rose Hill

POSTER 4
The Effects of a High-Sugar Food Diet on Drosophila melanogaster Geotaxis Behavior
Jennifer Amaya, Ajani Shallow, and Alexa Boylan,
SUNY College at Old Westbury

POSTER 5
The Effect of Essential Oils on the Behavior of C. elegans
Emily Anghad, Sarah Awan, Nafisa Azizi, and Emily Wong
Kingsborough Community College

POSTER 6
The Effects of Temperature & Natural Substances on Biofilm Formation
Olusola Babalola, William Ostorga, and Kyle Oyeniran
SUNY College at Old Westbury

POSTER 7
Do Animal Feces that Contain E. coli Increase Soil Respiration and Contribute to Global Warming?
Jack Chen, Susan Wang, Qi Jie Wu, and Yangfa Wu
Kingsborough Community College

POSTER 8
Food Factor: Can Eating Neurotrophic-Friendly Foods Improve Test Performance? Investigating the Consumption of Certain 'Brain Foods' and Test-Takers Test Scores
Daryn Curry and U'Syi Morris
SUNY Albany

STUDENT POSTER ABSTRACTS

STEP Conference 2019

Biological/Life Sciences

POSTER 9
The Future of Medicine with Wearable Devices
Ida Dawit
Syracuse University

POSTER 10
The Effects of Antioxidants on the Growth of Bacteria and Fungi
Jose Luis DeJesus, Fatimah Alfarhood, and Farhio Farah
Mohawk Valley Community College

POSTER 11
Reconstruction of the Semicircular Canal Morphology of the Earliest Fossil
Latifa Fakhry and Lucretia Smith
NYIT College of Ostepathic Medicine

POSTER 12
Testing of Bacterial Population from Random Pond Water Samples for Resistance to Silver Ions
Jordan Fowler
Suffolk County Community College

POSTER 13
Can the Helianthus Annus Perform Phytoremediation on Arsenic Contaminated Soils?
Julianna Geffrard
Hofstra University

POSTER 14
The Presence of Microbes in the Built Environment and Their Impact on Human Health
Lauren Guarneri, Tasneem Ibrahim, Kazi Nur, and David Leguisamo
New York University—BEST Program

POSTER 15
Comparative Functional Anatomy of Three Amphibians Using CT-Based Biomechanical Simulations
Damere Hardy and Natasia Houston
SUNY Buffalo School of Medicine

STUDENT POSTER ABSTRACTS

STEP Conference 2019

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POSTER 16
An Exploration in the Role Erzin Plays in Consciousness
Natalie Irwin
Cornell University

POSTER 17
The Effect of Additional Fungus on Plant Growth and Soil Nutrient Transport
YeXin Jiang, Yuxuan Lin, and Xinyi Yuan
Kingsborough Community College

POSTER 18
Production of Viable Erythrocytes Using the p53 Expression Vector
Xiner Jiang and Mehrab Hasan
Borough of Manhattan Community College

POSTER 19
Mitomycin C and its Analog Regulate Signaling Molecular RAS, ERK, and BRCA1
Anna Joseph and Alex Guerrero
John Jay College of Criminal Justice

POSTER 20
The Effects of Everyday Farming Agents on Plant Germination
Kimberly Kim, Fatime Adam, and Lay Say
Mohawk Valley Community College

POSTER 21
Lake Erie Algal Blooms Increase Each Year: Is this a Threat to Our Water Use?
Sydney McFoy, Johannis Brown, Tyleeia Lowther, and Trinity Suttle Nesbitt
SUNY Buffalo

POSTER 22
Cellular Damage Determines the Effective Treatment of Dandelion Root Extract
Brenda Mendez
Hofstra University

STUDENT POSTER ABSTRACTS

STEP Conference 2019

Biological/Life Sciences

POSTER 23
Hand Sanitizers and Effectiveness
Ereny Morcos, Alyssa Fitzhugh, Sara Morcos, and George Morcos
Rochester Institute of Technology

POSTER 24
Could Checking the Levels of Vitamin B_{12} Lead to Detecting Strokes Before They Occur?
Omer Mosker, Megan Hughes, Farzana Pritte, and Aaquil Kasham
New York University

POSTER 25
Role of Interleukin-9 in Stimulating Mast Cell Generation in the Gut
Lisette Peres
Icahn School of Medicine at Mount Sinai

POSTER 26
MATLAB Coding for X-Rays and Cancer Screenings
Olaposi Peters, Olakunsi Peters, Caleb Karkari-Mensah, and Onovu Otitigbe
Rensselaer Polytechnic Institute

POSTER 27
Assessment of Cell-Specific Neuronal Network Changes During Temporal Lobe Epileptogenesis
Gabriella Rabito
Columbia University

POSTER 28
Are Repeated Lockdown Drills Helping More Than Hurting? Potential Desensitization of the Body's Natural Fight-or-Flight Response
Mareeha Ramay and Habibah Yasin
Albany Medical College

POSTER 29
The Effects of Acid on Seed Germination
Daniel Richardson and Emrod Bull
Medgar Evers College

STUDENT POSTER ABSTRACTS

STEP Conference 2019

Biological/Life Sciences

POSTER 30
The Role of Heat Shock Protein in Prostate Cancer Progression
Jaydah Robertson
SUNY Buffalo

POSTER 31
Combined DYRK1A Inhibition and GLP-1R Activation Induces In Vivo Proliferation of Human Beta Cells
Diego Rodriguez
Icahn School of Medicine at Mount Sinai

POSTER 32
Isolation and Characterization of Peeb and Harry Two Mycobacterium Smegmatis mc2155 (smeg) Phages to Determine their Host Range Potential
Balquees Shafique, Hammad Nawaz, Olubusola Babalola, and Shannon Farnum Connaught
SUNY College at Old Westbury

POSTER 33
Biofuel Efficiency of Oily Plants
Connor Sniger, Parmesh Thakoordial, and Alexa Carrington
Rensselaer Polytechnic Institute

POSTER 34
The Imperativeness of Validating Variants Detected Through Whole Exome Sequencing in Gynecological Tumor Specimens in Cancer Research
Alexander Solivan and Fuad Muhit
Icahn School of Medicine at Mount Sinai

POSTER 35
The Effect of Urbanization on Small Mammal Composition in the Bronx Zoo
Angel Vega
Fordham University—Lincoln Center

STUDENT POSTER ABSTRACTS

STEP Conference 2019

Biological/Life Sciences

POSTER 36

Identifying Transcription Factors that Influence the Stable Expression of Olfactory Receptors in Neurons

Michelle Villagran
Columbia University

POSTER 37

Mirror, Mirror in the Box, Who's the Most Stressed of Them All? The Positive and Negative Effects of Stress on Learning

Tayvon Ward, Tayvia Ward, and Rachael Prosper
SUNY Albany

POSTER 38

Computationally Solving the Pathophysiological Pathway of Parkinson's Disease Using a Suffix Array Algorithm

Jahneca Williams
Stony Brook University

POSTER 39

Role of BRCA1 in the DNA Damage Response Triggered by Mitomycin C and Its Analog

Elyesse Marrero and Tamil Morel
John Jay College of Criminal Justice

POSTER 2

Immunotherapy Revolutionizes Cancer Treatment

Mohammed Ali Khan, Jessica Uraga, and Savion Reid
College of Staten Island

Cancer affects millions of individuals worldwide, and this number will continue to increase. Chemotherapy is a harsh cancer treatment that is currently in use, but a new treatment, immunotherapy, is explored as a safer alternative. There are various distinctive treatments for cancer, and because of varying target mechanisms, each presents with side-effects that others may not. For instance, chemotherapy results in hair loss because every cell in the body is targeted, and not specific cancer cells. Immunotherapy is new, but has promising results for the treatment of cancer. Immunotherapy uses the body's immune system to fight cancer cells, resulting in a safer treatment. With further research, development, and improved technology, immunotherapy has the potential to revolutionize cancer treatment. Various aspects of immunotherapy are discussed, and numerous distinctive suppositions and insights on immunotherapy are reviewed in this research. Statistics on patients are also presented.

POSTER 3

Investigation of the Protein-Protein Interaction Between HPV16 L2 and Histone H2B

Alesha Alli
Fordham University--Rose Hill

Human Papillomavirus (HPV) is a deoxyribonucleic acid (DNA) virus that infects human epithelial cells. HPV16 has been identified as one of the main causes of death in females worldwide. Two current vaccines—Cervarix and Gardasil—are available for HPV treatment, and target the L1 protein that is expressed before the establishment of the infection[2]. This limits protection to people who are already infected. This project aims to analyze the interaction between L2, minor capsid protein, and the host cell's H2B protein. The L2 protein that accompanies the viral DNA to the host's nucleus could be a promising vaccine target for those who are already infected[1]. Histone H2B is significant because it distinguishes self and non-self DNA[3]. We predict that the L2 protein interacts with the H2B protein, which will be assessed by co-transfecting our DNA of interest into 293TT cells. We will then utilize our cell lysates in an SDS-PAGE to detect our proteins of interest.

POSTER 4

The Effects of a High-Sugar Food Diet on Drosophila melanogaster Geotaxis Behavior

Jennifer Amaya, Ajani Shallow, and Alexa Boylan,
SUNY College at Old Westbury

This project investigates the effect of a high sugar diet on the geotactic behavior of Drosophila melanogaster. Diabetes is a global health concern that affects an individual's ability to produce and/or effectively utilize insulin. Fruit flies have been used as a model organism to study type I and II diabetes because of the genetic similarities they share with humans. Flies were maintained in vials with different banana-based diets to induce a Type II diabetic state. After exposure to the diet we tested the flies geotactic behavior. It is possible that this treatment will mimic behaviors similar to those many humans experience as a side effect of diabetes. With further experimentation, it is possible that this model can be used to evaluate potential treatments for people living with diabetes.

POSTER 5

The Effect of Essential Oils on the Behavior of C. elegans

Emily Anghad, Sarah Awan, Nafisa Azizi, and Emily Wong
Kingsborough Community College

Humans have been using aromatherapy with natural oils for medical and religious purposes for thousands of years. Oils are thought to reduce stress, agitation, and anxiety. This study was designed to examine the effects of different essential oils on the behavior of C. elegans. Mentha piperita (peppermint), Eucalyptus globulus (eucalyptus), or Citrus sinensis (orange) oil was added to C. elegans suspended in buffer, and worm responses were recorded. The rate of lateral swimming, or thrashing, of C. elegans was assessed with each essential oil. Preliminary data indicated that C. elegans had a greater thrashing rate (measured in #thrashes/second) when exposed to peppermint and orange oils, in comparison to eucalyptus oil. Therefore, reactions of C. elegans to olfactory chemosensation can be used to analyze and model human neural responses to aromatherapy with oils.

POSTER 6

The Effects of Temperature & Natural Substances on Biofilm Formation

Olusola Babalola, William Ostorga, and Kyle Oyeniran
SUNY College at Old Westbury

Biofilm formations are bacterial colonies that adhere to organic surfaces, such as internal parts of the human body. This experiment tested the effects of varying temperature and the natural substances of oregano extract and apple cider vinegar (ACV) on disrupting biofilm formation. It was hypothesized that the oregano extract combined with a higher incubation temperature would be most effective at inhibiting biofilm formation. Three diluted samples of oregano extract and ACV were placed into different well plates, each containing 1 mL of Escherichia coli, and were incubated at **34°C, 37°C, and 40°C.** The absorbance for each E. coli sample was then measured with a spectrophotometer at 600 nm. The collected data indicates that the ACV was the most effective natural remedy, particularly in the **34°C** well plate. The diluted sample of the ACV produced the lowest average concentration of bacteria, with an absorbance of 0.34.

POSTER 7

Do Animal Feces that Contain E. coli Increase Soil Respiration and Contribute to Global Warming?

Jack Chen, Susan Wang, Qi Jie Wu, and Yangfa Wu
Kingsborough Community College

Soil respiration is the production of carbon dioxide (CO_2) from soil due to the decomposition of organic matter by soil microbes, and respiration from plant roots. Animal feces contain E. coli, an allochthonous soil microbe. This study is designed to determine whether the addition of E. coli to soil—to mimic feces deposition—could increase soil respiration. Soil CO_2 (indicating respiration) and ambient CO_2 (released from the soil) were measured (in ppm) using PASCO CO_2 probes in the presence, and absence, of E. coli over time. Measurements were repeated with soil containing germinated or non-germinated Phaseolus vulgaris L. (pinto beans) +/- E. coli. Results demonstrated that both soil and ambient CO_2 concentrations increased significantly when E. coli was added to the soil. Therefore, it is plausible

that animal feces containing E. coli may increase soil respiration, ultimately increasing ambient CO_2 concentrations, thus contributing to global warming over time.

POSTER 8

Food Factor: Can Eating Neurotrophic-Friendly Foods Improve Test Performance? Investigating the Consumption of Certain 'Brain Foods' and Test-Takers Test Scores

Daryn Curry and U'Syi Morris
SUNY Albany

Whether one has studied or not, being able to do well on an exam can be affected by many factors. One factor is being nutritionally-ready to take an exam. Studies have shown how neurotrophic agents can play a part in brain performance and activity. In this research experiment, four popular and easily-accessible brain foods were tested to determine whether there are differences in test-takers trivia exam scores when brain foods are consumed. Test-takers completed self-evaluation surveys before and after each trivia exam. A trend was realized with test-takers who consumed dark chocolate, and results showed that they were able to receive better scores than test-takers who consumed water. Our research results are based on trivia exam scores, self-evaluations responses, and the type of 'brain food' consumed prior to taking the second trivia exam. Continued analysis of data is need to determine whether there are other factors that could be measured.

POSTER 9

The Future of Medicine with Wearable Devices

Ida Dawit
Syracuse University

The medical world has been changing, and these changes have helped to save many lives. One change is the use of wearable technology, which has advanced the ability of doctors to treat patients. On average, about 98,000 people die per year due to limited knowledge of their vitals. However, with wearable medical technology that records vitals, blood pressure, and physical activities (Richter,2015), this has changed. This technology is not available worldwide due to the lack of resources, however, in countries where it is available, the devices have had a positive impact. Many of these devices use the internet, making personal information remotely accessible to others who are able to assist in monitoring a person's heart rate. The internet also allows the person who is using the wearable device the ability to engage in activities that they would not have been able to while being hooked up to a machine in a hospital. The goal is to determine whether wearable technology can be the future of medicine.

POSTER 10

The Effects of Antioxidants on the Growth of Bacteria and Fungi

Jose Luis DeJesus, Fatimah Alfarhood, and Farhio Farah
Mohawk Valley Community College

Antioxidants are molecules that interact with free radicals to prevent oxidation. This is important because it helps keep fruits and vegetables fresh for longer periods of time. Some foods are known to have higher levels of antioxidants, including fresh berries, leafy green vegetables, and green tea. This study will examine the amount of antioxidants in blueberries, spinach, and green tea, as well as the bacteria and fungi found on them. Milk was also examined since it has noticeably less antioxidant activity. Antioxidant activity was measured with the Ferric Reducing Antioxidant Power (FRAP) assay. Bacteria were grown on nutrient agar and Eosin Methylene Blue (EMB) plates. Fungi were grown on Sabouraud dextrose plates. It is expected that higher antioxidant activity will allow for the higher growth of bacterial and fungal cells since free radicals can kill these cells.

POSTER 11

Reconstruction of the Semicircular Canal Morphology of the Earliest Fossil

Latifa Fakhry and Lucretia Smith
NYIT College of Ostepathic Medicine

The part of the inner ear that detects head motion, crucial for maintaining balance during locomotion, is the semicircular canals (Ekdale, 2016). Shape of semicircular canals varies amongst ammals, and differences have been associated with different types of locomotion (Spoor et al., 2007). Connection between semicircular shape and locomotion remains somewhat an enigma, and whether semicircular canals can predict locomotion in fossil mammals is debated (Ekdale et al., 2016). We have paired with NYIT Paleontologist, Simone Hoffmann, to gain a better understanding of the the evolution of the semicircular canals. We used the 3-D reconstruction software, *Amira*, to study the inner ear of the earliest stem mammal Morganucodon. Based on CT scans, we virtually reconstructed the semicircular canals of the inner ear in several specimens. Our preliminary data shows the semicircular canals appear to be variable in diameter. Our study will be the first to look at the variation of semicircular canals and with hopes that the research conducted will be able to help to better understand modern mammal locomotion.

POSTER 12

Testing of Bacterial Population from Random Pond Water Samples for Resistance to Silver Ions

Jordan Fowler
Suffolk County Community College

Silver nanoparticles present antibacterial activity by releasing silver ions. Their widespread use and release could negatively impact both beneficial microbial communities in the ecosystem, and select bacterial resistance in microbes dangerous to human health. The purpose of this project is to study bacterial communities in pond water for resistance to silver ions. Water samples from the surface and bottom of a pond were collected, and 1 ml of each sample was spread over petri dishes filled with Tryptic Soy (TS) agar alone, plus 5 mM silver nitrate, or plus 2 μg/ml Ampicillin. Bacterial colonies were counted, and numbers were compared. The bacterial population from the bottom was more resistant to silver ions than bacteria from the top of the pond water. These findings support the hypothesis that nanoparticles settle on the bottom of the lake, thus enabling the selection of bacteria resistant to silver ions.

POSTER 13

Can the Helianthus Annus Perform Phytoremediation on Arsenic Contaminated Soils?

Julianna Geffrard
Hofstra University

Arsenic contaminated soil is a growing economic crisis. Even though technologies are already implemented, it is important to understand the limitations for developing nations. In this study, the Helianthus Annuus was used over a four week period to determine whether it was a successful hyperaccumulator. The experiment was repeated four times, and it consisted of five different concentrations from one hundred to four hundred times, including the control group. After the experiment, it is concluded that the H. Annuus was not successful. After approximately three weeks, the leaves and stems of the plants started to wilt. Future research, such as recreating this experiment and incorporating various plant species like Oryza Sativa, are highly provable.

POSTER 14

The Presence of Microbes in the Built Environment and Their Impact on Human Health

Lauren Guarneri, Tasneem Ibrahim, Kazi Nur, and David Leguisamo
New York University—BEST Program

With the trillions of microbes that are nearly everywhere—some beneficial, others pathogenic—our interaction with them is inevitable. Understanding the types of microorganisms with which humans interact is critical to understanding human health. Inspired by research carried out by the United States Environmental Protection Agency that states that the average American spends 93% of their life indoors, we cultured samples from a traditional college classroom to identify the microorganisms that individuals are more likely to encounter. In this study, genomic deoxyrobonucleic acid (DNA) was extracted from bacteria collected from four locations, and a series of polymerase chain reactions (PCR) were performed. Following DNA amplification, the extracted DNA sequences were able to be viewed using the basic local alignment search tool (BLAST), allowing for the idenification of microbes through the use of DNA barcoding. Through this research we hope to identify the microbes that are present in the built environment and eventually explore their impact on human health.

POSTER 15

Comparative Functional Anatomy of Three Amphibians Using CT-Based Biomechanical Simulations

Damere Hardy and Natasia Houston
SUNY Buffalo School of Medicine

Amphibians are a group of vertebrates that have adapted to live in water, and on land. As insectivores, amphibian diets will naturally be 30% to 60% protein. For many years, habitat destruction has had a severe impact on the distribution and abundance of numerous amphibian species. With the changes that have occurred in habitats over time, the feeding habits of these amphibians would also need to adapt. Using CT-based biomechanical simulations to compare the functional anatomy of three amphibians, our goal is to gain insight into how the jaws/mandible of amphibians mechanically behave during mastication and different diet adaptation. The mastication behavior was simulated through finite element analysis (FEA)—a method commonly used in aerospace, mechanical engineering, and orthopedics. Using *Dragonfly*, CT scans were converted into 3D models to analyze the scans slice by slice. The scans were turned into 3D mesh and exported to Geomagic, which formed the 3D models for simulation and print.

POSTER 16

An Exploration in the Role Erzin Plays in Consciousness

Natalie Irwin
Cornell University

The purpose of this research is to unravel a mystery that has long vexed scientists: consciousness. I hope that this research can bring humanity one step closer to filling the scientific gap that can explain the biology that comprises the conscious state. In the project, the relationship between the protein Ezrin (cytovillin or villin-2) and consciousness is addressed. Through a formal internship with Cornell University, this researcher began the study of Advance Placement Psychology. To analyze the data, Immunofluorescence was utilized to track the exact location of the protein, and Immunoprecipitation was utilized to physically extract the protein. It was concluded that Ezrin holds a major responsibility in determining cell polarity. Subsequently, cell polarity determines cell function. This concept was applied to the course in AP Psychology, and it was hypothesized that cell polarity directly influences the neurons that compose the state of consciousness. Hence, Ezrin plays a role in consciousness.

POSTER 17

The Effect of Additional Fungus on Plant Growth and Soil Nutrient Transport

YeXin Jiang, Yuxuan Lin, and Xinyi Yuan
Kingsborough Community College

The global fungal network is an underground distribution system whereby plants communicate with each other by sharing resources. Nutrients are transported from plant to plant, connected by fungal mycorrhizae. This study examines the effects of fungus on soil nutrient transport and plant growth. Non-germinated Phaseolus vulgaris (pinto beans) were placed in soil on opposite ends of a rectangular planter. Fungus (Aspergillus, Penicillium, or Coprinus) was added across the center in between the two groups of beans. Fertilizer was added to one side. Soil samples were removed weekly from both sides of the container. Analysis of the samples demonstrated an increase in potassium and phosphorus content on the non-fertilized side of the container. Importantly, nutrients did not migrate in the control containers. Plant growth was equivalent on both sides of the fungal wall, suggesting that the fungus aids nutrient transfer in the soil and could enhance the growth of food crops.

POSTER 18

Production of Viable Erythrocytes Using the p53 Expression Vector

Xiner Jiang and Mehrab Hasan
Borough of Manhattan Community College

The lack of viable alternatives to meet the excessive demand for blood donations led researchers to use direct lineage reprogramming to change murine fibroblasts into induced erythroid progenitors (iEPs)1 through the overexpression of four transcription factors—GATA1, TAL1, LMO2, and cMYC1. This project aims to produce viable red blood cells from a p53-null colon cancer cell line (DLD-1)2 transfected with these transcription factor genes. The genes will be transfected into a tetracycline-dependent expression vector found in cancer line DLD-1. In a tetracycline-present environment, the genes necessary for erythropoiesis are activated and converted into hematopoietic cells. In a tetracycline-absent environment, the cancer cells will grow and divide normally. Proper conversion will be genetically assessed with qPCR, qualitatively assessed through fluorescent microscopy, and verified through protein analysis using

western blotting. The successful conversion of the cell line will produce an inducible replicating system for RBC production, reducing the need for blood donations.

POSTER 19

Mitomycin C and its Analog Regulate Signaling Molecular RAS, ERK, and BRCA1

Anna Joseph and Alex Guerrero
John Jay College of Criminal Justice

Mitomycin C (MC) is an anticancer drug frequently used to induce deoxyribonucleic acid (DNA) damage, and is a known p53-dependent tumor suppressant. Decarbamoyl Mitomycin C (DMC) is an anticancer drug lacking carbamate at C10, which causes DNA damage, but is more effective in killing p53 deficient cells. The aim of this study is to elucidate the controlling molecules in response to MC and DMC in MCF-7 (p53-proficient) and K562 (p53-deficient) cells. Western blot analyses were performed to detect RAS, ERK, and BRCA1 in MCF-7 and K562 cells treated with MC and DMC.

MC and DMC decreased RAS levels and deactivated ERK in MCF-7 and K562 cells. BRCA1 expression was increased in MCF-7 cells treated with MC, DMC, and alpha-interstrand DNA crosslink (ICL), which is the major ICL produced by MC intracellularly. MCF-7 and K562 cells both responded to MC and DMC treatments in the same manner.

POSTER 20

The Effects of Everyday Farming Agents on Plant Germination

Kimberly Kim, Fatime Adam, and Lay Say
Mohawk Valley Community College

Farmers in the agricultural industry heavily rely on pesticides, herbicides, and fertilizers to grow their crops. But these farming agents can also have adverse effects on the environment, such as contamination to water sources and vegetation. With these consequences in mind, it raises the question, 'What purposes do these agricultural compounds serve for continued use by farmers?' The above three farming agents were tested on dwarf sunflower plants and dwarf sugar pea plants, and the effects of plant germination by each were compared to a control group, and to a group that utilized all three. Ten 12" pots were used; each pot contained five seeds. Five pots carried dwarf sugar pea seeds, and the residing half held dwarf sunflower seeds. Over the course of nine weeks the effects and growth differences were apparent. Further research is imperative on the effects these agents have on agriculture.

POSTER 21

Lake Erie Algal Blooms Increase Each Year: Is this a Threat to Our Water Use?

Sydney McFoy, Johannis Brown, Tyleeia Lowther, and Trinity Suttle Nesbitt
SUNY Buffalo

Lake Erie's coasts hosts a few big cities: Buffalo, New York; Erie, Pennsylvania; and Toledo, Ohio. Algae is a plant found in the water, and it provides food for its animal wildlife. If algae grows too quickly, or overgrows, it could be harmful to animal life and humans. Researchers say that fertilizer is one of the reasons for the algal blooms in Lake Erie. The purpose of this project is to observe the growth of algae in various concentrations of fertilizer, and to test the water from Lake Erie to identify whether there are contaminants present in the water. Our results indicate that

fertilizer does increase the size and time of growth in algal, and water testing results indicate that Lake Erie has some pollution concerns (such as the presence of chemicals and bacteria that can be considered toxic if at a certain level). There is more investigation needed.

POSTER 22

Cellular Damage Determines the Effective Treatment of Dandelion Root Extract

Brenda Mendez
Hofstra University

Radiation treatment to kill cancer cells exposes normal cells to ultraviolet (UV) damage. This project was initiated to explore the possibilities of an inexpensive, widespread, and non-intrusive form of treating cancer. During experimentation, adult human epithelial cells, and mouse macrophage stem cells, were UV irradiated to evaluate its effect at various phases of differentiation. Since dandelions and Taraxacum officinale have multiple healing properties, a dandelion root extract was produced in phosphate buffered saline (PBS), was incubated with mouse macrophage tumor cells and control adult epithelial cells, examined daily over the course of two weeks, and photographed using an inverted microscope. Results warrant further study with higher doses of dandelion root extract and more subjects with various types of cancer, which can put us closer to finding a cure for cancer.

POSTER 23

Hand Sanitizers and Effectiveness

Ereny Morcos, Alyssa Fitzhugh, Sara Morcos, and George Morcos
Rochester Institute of Technology

The purpose of this project is to determine the effectiveness of hand sanitizers on commonly encountered bacteria, particularly spore-forming bacteria. The methodology consisted of isolating bacteria from common sources and exposing them to the effect of hand sanitizers. Liquid cultures of the bacterial isolates were mixed with an equal ratio of hand sanitizer solution, incubated at 37°C in sealed 96-well plates, and monitored for growth and viability using a spectrophotometer. The results support the original hypothesis that the viability of some, but not all, bacteria are effected by common hand sanitizers. Consequently, these findings suggested that hand sanitizers may not be as effective against spore forming organisms, which represent the greatest threat in hospital-acquired infections. Despite the use of hand sanitizers that are meant to render bacteria harmless, some bacteria remain resilient and may still present a level of threat to the public.

POSTER 24

Could Checking the Levels of Vitamin B_{12} Lead to Detecting Strokes Before They Occur?

Omer Mosker, Megan Hughes, Farzana Pritte, and Aaquil Kasham
New York University

Vitamin deficiencies can lead to many diseases. Diseases such as strokes can be caused by many risk factors, but can low vitamin B_{12} levels contribute to developing the disease? Is there an early detection method in place to help screen people of the highest risk? This project aims to screen vitamin B_{12} levels in humans, and to determine the ways in which the levels effect the development of the disease over time. Vitamin levels were obtained through urine samples of individuals in hospitals or nursing homes. Diet can also affect one's B_{12} levels since it is found in high levels in foods such as animal liver, seafood, and dairy products. This study seeks to identify this connection and to offer suggested dietary changes in order to raise B_{12} levels. With more people being screened, the higher the possibility for a decrease in stroke occurrence.

POSTER 25

Role of Interleukin-9 in Stimulating Mast Cell Generation in the Gut

Lisette Peres
Icahn School of Medicine at Mount Sinai

Food allergies affect nearly 8% of children, and the main cause of allergic reaction being mast cells that release histamines. To control mast cell generation we examined interleukin 9 (IL-9), a mast cell growth factor. This project focused on the administration of IL-9 and its impact on mast cell generation and activation. We conducted an experiment with BALB/c mice to determine whether there would be an increase in mast cell generation by the sole injection of IL-9 in the gut. For identification of mast cells and their activation, we used flow cytometry, histochemistry, and ELISA. A significant difference between the two groups was not found, and it is concluded that IL-9 alone does not stimulate mast cell generation. Limitations of the study that could be addressed in future work include larger sample sizes, longer injection periods, or additional cytokines such as IL-4 being injected.

POSTER 26

MATLAB Coding for X-Rays and Cancer Screenings

Olaposi Peters, Olakunsi Peters, Caleb Karkari-Mensah, and Onovu Otitigbe
Rensselaer Polytechnic Institute

X-Rays are a less costly, common medical scan that can be used to diagnose and monitor cancer. However, X-Rays are less accurate than more costly CT Scans. This research project will determine whether a code can be created to decode an X-ray scan that primarily focuses on looking at forms of cancer. MATLAB will be used to analyze coding for both X-Rays and CT Scans. New coding will be developed to help increase the resolution and the detection of X-Ray scans when used for cancer monitoring. The new code will be compared to currently used coding images, but there is a potential cost barrier for some individuals. The result of this study will help to not only increase the reliability of X-Rays, but to also remove the potential cost barrier.

POSTER 27

Assessment of Cell-Specific Neuronal Network Changes During Temporal Lobe Epileptogenesis

Gabriella Rabito
Columbia University

Temporal Lobe Epilepsy (TLE) is a brain disease characterized by abnormal brain activity, aberrant cellular occurrences, and an imbalance between excitation and inhibition, which results in debilitating recurrent epileptic seizures and cognitive impairments. This project investigates the brain's structural reorganization of inhibitory and excitatory cells during the latent phase, leading to the emergence of recurring seizures, that are prompted by a unilateral kainic acid injection in the hippocampus of a mouse model. Inhibitory principal cell-type specific labeling in healthy and diseased brains was accomplished using a combination of genetic targeting and immunohistochemistry (IHC) for specific proteins: (a) Histology stained for parvalbumin and somatostatin, inhibitory interneuron populations, and (b) doublecortin (DCX), a neuron biomarker for cells 2-3 weeks post-divide. Results found limited signal of parvalbumin and somatostatin in the injected hemisphere, suggesting cell ablation and decreased inhibition. Reduced DCX signal in injected hemisphere suggest a halt in neurogenesis at the site of trauma.

POSTER 28

Are Repeated Lockdown Drills Helping More Than Hurting? Potential Desensitization of the Body's Natural Fight-or-Flight Response

Mareeha Ramay and Habibah Yasin
Albany Medical College

As violence in schools increases, so does the pressure on schools to keep students safe. Because of this, there is an increase in the number of 'lockdown drills' practiced that are designed to educate students about safety procedures in the event of an actual threat. Consequently, research shows that with repeated stimulus exposure, one's biologically pre-programmed response of the sympathetic nervous system diminishes. We hypothesize that the media's dramatization of school threats, in combination with repeated drills, causes abnormal student responses during baseline and actual emergency situations, thereby putting them in more danger. Capital Region schools were surveyed to assess the response of students who have, and who have not, experienced a recent school threat. Preliminary data shows that naive students do not predict any heightened fear response during an actual threat, suggesting desensitization indeed is occurring. Further research is underway within non-naive student bodies to determine whether these desensitized responses of the body's natural fight-or-flight system persist during actual emergencies.

POSTER 29

The Effects of Acid on Seed Germination

Daniel Richardson and Emrod Bull
Medgar Evers College

Environmentalists have warned us against burning fossil fuel because it produces high volumes of nitrogen dioxide and sulfur dioxide pollutants. When these two substances react with water, oxygen, and other pollutants in the atmosphere, it can create precipitations called acid rain. Acid rain is destructive to all Earth's ecosystem, from land to sea. This project investigates the effects of varying concentrations of acidity on germination. Groups of ten bean seeds were soaked for 24 hours in solutions containing between 0% to 100% acidity, and were then planted. The seeds were

watered and observed for 14 days. It was discovered that as acidity concentration increased, germination decreased, or did not occur with seeds soaked in solutions with 50% to 100% acidity. Based on the findings, air pollutants need to be mitigated or primary food sources will be destroyed because of the high acidity levels of soil because of acid rain.

POSTER 30

The Role of Heat Shock Protein in Prostate Cancer Progression

Jaydah Robertson
SUNY Buffalo

Cancer is a syndrome highlighted by an uncontrolled growth of cells. Prostate Cancer (PCa) is the most common type of cancer found in men, and early detection is crucial to successful treatment. Unfortunately, all PCa patients develop resistance against all treatments; therefore, new targets need to be identified in fighting against this disease. Heat shock protein 60 (HSP60) is a chaperone protein found in the mitochondria of cells, and helps to maintain cellular structure and equilibrium. This study will use human PCa cells as models to observe the role of HSP60 inhibitor (DCEM-1) in PCa cell growth in vitro. Our data shows that the inhibition of HSP60 caused significant inhibition of cell viability, along with significant increases in caspase-3 activity in LNCaP and PC3 PCa cells. We conclude that HSP60 can be a therapeutic target for PCa treatment. By doing targeted research on cancer, scientists can rule out ineffective methods and/or data.

POSTER 31

Combined DYRK1A Inhibition and GLP-1R Activation Induces In Vivo Proliferation of Human Beta Cells

Diego Rodriguez
Icahn School of Medicine at Mount Sinai

Diabetes mellitus is a disease that ultimately results from beta cell deficiency and dysfunction. This study focuses on the development of a DYRK1A inhibitor molecule—harmine—that was previously discovered to induce beta cell proliferation by improving its specificity to the beta cell and its potency through combination with GLP-1 analogue exendin-4. Using in vivo mouse models, adult human islets were transplanted under the kidney capsule of immunodeficient mice, and were dosed daily with combinations of harmine and exendin-4 for a week. Immunohistochemistry was used to stain the islet grafts, and proliferated beta cells were subsequently quantified. Although the synergistic interactions between harmine and exendin-4 are unknown, the combination treatment showed great promise for improving the potency of harmine in human beta cells and restoring beta cell mass.

POSTER 32

Isolation and Characterization of Peeb and Harry Two Mycobacterium Smegmatis mc2155 (smeg) Phages to Determine their Host Range Potential

Balquees Shafique, Hammad Nawaz, Olubusola Babalola, and Shannon Farnum Connaught
SUNY College at Old Westbury

Antibiotic resistance is a global issue for treating bacterial infections. Bacteriophages therapy may hold the answer for the problem. Peeb and Harry are two smeg bacteriophages that were isolated and purified from soil samples taken from local Long Island soils. The objectives were to characterize their plaque shape, titer, and morphology, and to test their potential for infecting other bacterial hosts. Soil samples were enriched with smeg, and the filtrate was incubated on 7H9 agar plates at **37°C** with smeg. Plaques were picked and purified until all plaques were of a single morphology. The lysate for Harry had a titration of 3.3 x 10^9pfu/mL, and the titration of Peeb was 1.14 x 1010 pfu/mL. Each of these phages have been tested against M. smegmatis, our host bacteria, and have ben proven effective in its eradication. Peeb and Harry were tested for their host infection using Gordonia terrae and Arthrobacter sp.two actinobacteria related to smeg.

POSTER 33

Biofuel Efficiency of Oily Plants

Connor Sniger, Parmesh Thakoordial, and Alexa Carrington
Rensselaer Polytechnic Institute

This project will determine the biofuel and efficiency of two oily plants. Fossil fuels are running out, and a sufficient alternative needs to be found in the near future. Biofuels can be used as an alternative to many fossil fuels; oily plants are used to generate many alternatives for fossil fuels. In this study, the efficiency of soybeans and mustard will be determined. The plants will be grown in the same room. To determine the most efficient, the rate of growth, ease and cost of biofuel production, and final energy output will be tested. The total cost of generating the biofuels, including planting, material costs, and biofuel production, will be compared to fuel output. The fuels can be used to help heat greenhouses in cooler climates. Continued use of greenhouses will allow us to further decrease our reliance on fossil fuels by growing produce locally, thereby decreasing transportation costs and distances.

POSTER 34

The Imperativeness of Validating Variants Detected Through Whole Exome Sequencing in Gynecological Tumor Specimens in Cancer Research

Alexander Solivan and Fuad Muhit
Icahn School of Medicine at Mount Sinai

Gynecological cancers are among the most deadly forms of cancer affecting women, as symptoms tend to not present until later stages, and unfortunately, recovery for older adults is difficult. Liquid biopsies involve the detection of biomarkers in bodily fluids and help to monitor a patient's condition without requiring surgical biopsy. Whole exome sequencing has helped to determine biomarkers for gynecological tumors, but the rapid nature of whole-exome sequencing can also identify false positive mutations. Through PCR, and through electrophoresis and sanger sequencing, sections of tumor DNA containing suspicious mutations were amplified, and the validity of the variations were determined through allele fraction height within chromatograms. In our experiment, only 10 of the 13 samples

could be amplified and sequenced. In those samples, only 1 of the mutations was proven valid. The large number of false positives detected demonstrates the importance of manual mutation validation to protect the validity of data and grant money.

POSTER 35

The Effect of Urbanization on Small Mammal Composition in the Bronx Zoo

Angel Vega
Fordham University—Lincoln Center

Urbanization consists of the construction of roadways, buildings, and overall development of cities. Urbanization typically decreases small mammal species richness due to habitat loss, but it may also increase species richness due to the introduction of new species. Our objective was to examine small mammal composition in the Bronx Zoo as a reaction to urbanization, and the relationship between distance to roadways and proximity to water sources as it correlates with small mammal species richness. Although positive correlations between plant species richness and increases in small mammal species were found, the results were not significant. Another hypotheses about distance to roadways and water sources were not supported, but results may have been skewed due to lack of data based on weather-related limitations. Future studies should use more field sites with different environments, and collect data over a longer period of time.

POSTER 36

Identifying Transcription Factors that Influence the Stable Expression of Olfactory Receptors in Neurons

Michelle Villagran
Columbia University

The olfactory area, located in the nasal epithelium, is a complex system of neurons that work together to give the sensation of smell through neurons. For each neuron there is one olfactory receptor (OR) gene expressed, which allows the neuron to depolarize when exposed to a certain odor molecule. This is accomplished through an enzyme called Lysine-specific histone demethylase 1 (LSD1) that activates one OR out of more than 1000 possible choices; this occurs at high levels while other genes are silenced. LSD1 then becomes down-regulated in mature neurons, preventing multiple ORs from becoming activated, allowing for a more robust, discriminatory sensory modality. I study what transcription factors repress LSD1, an enzyme that holds a pivotal role in the activation and deactivation of olfactory receptors in olfactory sensory neurons (OSN).

POSTER 37

Mirror, Mirror in the Box, Who's the Most Stressed of Them All? The Positive and Negative Effects of Stress on Learning

Tayvon Ward, Tayvia Ward, and Rachael Prosper
SUNY Albany

Learning is critical for survival, but stress has a direct effect on one's ability to learn. Research has shown a range of evidence with regard to these effects, and they are based on a variety of factors that include the type of stress, duration of stress, and traits of the individuals. Multiple brain regions are involved in learning and stress, including the striatum, hippocampus, and amygdala. We hypothesize that information transfer between these regions is compromised during different types of stress. A mirror-box drawing test was used to measure a subject's ability to learn during controlled, and stress-induced, situations. Stressors included physical and psychological stress. It was found that psychological stress decreased the subject's ability to learn, and light physical stress enhanced one's ability to learn a new behavior. Our data shows that there is a direct effect of stress on learning, suggesting a neurological change in the signaling pathways involved in learning during stress.

POSTER 38

Computationally Solving the Pathophysiological Pathway of Parkinson's Disease Using a Suffix Array Algorithm

Jahneca Williams
Stony Brook University

Parkinson's Disease is a known neurodegenerative disease that is associated with low dopamine levels[1]. There is currently a gap in knowledge concerning the pathophysiological pathway of Parkinson's Disease[2]. This research aims to utilize genomics to develop a potential pathway based on gene sequence analysis. The longest repeating sequence within Pink1, a gene known to be associated with this disease, was obtained using a suffix array algorithm. This sequence was then put into Wolfram alpha to identify other genes in the human genome that contain the same sequence within coding regions. After genes were identified and gene function was determined, genes associated with known Parkinson's Disease symptoms were added to a potential pathway. Current findings indicate genes that share the longest repeating sequence appear to have an important role in calcium regulation and neuronal function. As this is computational biology, this potential pathway was not tested on mammalian cells.

POSTER 39

Role of BRCA1 in the DNA Damage Response Triggered by Mitomycin C and Its Analog

Elyesse Marrero and Tamil Morel
John Jay College of Criminal Justice

The breast and ovarian cancer susceptibility gene 1 (BRCA1) is a tumor suppressor gene associated with early onset breast cancer. It contributes to DNA repair and transcriptional regulation in response to DNA damage. Mitomycin C (MC) is an anticancer drug, frequently used to induce DNA damage. The main DNA interstrand crosslink (ICL) produced by MC is α-ICL, which has played a role in cell death. The aim of this study is to elucidate the role of BRCA1 in response to MC, DMC, and α-ICL in MCF-7 cells. Western blot analysis were performed to detect BRCA1 protein expression in MCF-7 with MC, DMC, and α-ICL. BRCA1 expression was transiently increased in MCF-7 cells treated with MC and DMC for 24 hours. □ **-ICL** is sufficient to increase BRCA1 in a dose-dependent manner.

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POSTER 54

Science Meets Service: Mouthguard Project-Oral Health as an Indicator of Overall Wellness

Dondrell Vance, Jr., Jessica Shaw, and Isabelle Carter
SUNY Buffalo School of Medicine

POSTER 40

The Effect of Bacteria on Humans that is Found in Washington Square Park

Marco Andrade, Samantha Cajamarca, Candice King, and Navid Chowdhury
New York University—Best Program

Bacteria in a populated area can impact humans differently than those in a more isolated area. The main objective of this project is to identify the species of bacteria found in different areas to better understand their impact on humans. Various spots in Washington Square Park were chosen based on human interaction. Through the bacterial genome, a deoxyribonucleic acid (DNA) barcoding procedure was used to identify the bacterium based on a segment of DNA. By knowing the community of microbes, bacteria that may be harmful to humans could be identified. An example of this would be the spread of bacteria—such as Meningitis (Streptococcus pneumoniae)—which is an airborne disease that was found in the park. Also, based on the place of collection, risk for contagion could be better guaged, as more isolated areas have a lower chance of contagion.

POSTER 41

SUGAR, THE SILENT KILLER! We Are the Food We Eat!

Yosmary Araque, Victoria Aquino, and Brianna Batres,
Adelphi University

A prominent New York psychiatrist once said that eating foods with high amounts of sugar is a slow form of suicide. Is he correct? This project is about glucose. What foods contain high amounts of sugar? What foods are safe and healthy to eat? What foods present so much glucose as an end product that eating it could lead to a form of diabetes? The objective of this project is to be able to educate peers on ways to eat healthy. The project was performed using Invertase, an enzyme that breaks down foods into digestible sugars, and testing them with glucose test strips. Foods represented from each of the USDA food groups were used. The results confirmed that foods from the fats, oils, and sweets group were the highest in sugar, and the most consumed by teens. Results support that teens do not intake the healthiest foods.

POSTER 42

Combating Obesity in 15 Minutes a Day

Arafa Djouma, Faiza Zakaria, and Fadumo Ali
Mohawk Valley Community College

A combination of inactive lifestyles and increased access to unhealthy foods has contributed to the obesity epidemic that exists in the United States. Obesity is a condition in which excess body fat is linked to adverse health effects. Being physically active could bring a person's Body Mass Index (BMI) and body fat percentages to healthy levels. The initial experiment tested how exercising intensely for 15 minutes a day, 5 days a week, without a diet change, could change a person's BMI, body fat percentage, and body part measurements. Unfortunately, 4 out of 5 participants were physically active prior to the start of the experiment and showed very little change in BMI, body fat, and body measurements. The one person who was previously inactive showed a significant decrease in all three areas. These findings suggest that being physically active prior to starting the workouts will not have much of an effect.

POSTER 43

Raynaud's Disease; Misunderstood

MariArelis Flores
University of Rochester School of Medicine and Dentistry

There is a campaign called "Don't Turn a Cold Shoulder to Painful Fingers" to urge people with Raynaud's Disease to seek medical attention. This project aims to quantify the lack of awareness about the disease and explore barriers to visiting the doctor. This project is important because many people with Raynaud's may have an underlying condition. We surveyed approximately 53 people, and their ages ranged from 12-13 years old on Instagram®, to 30-40 years old on Facebook®. On average, 36.9% of respondents experienced symptoms of Raynaud's, and 24.5% identified as having the disease. This gap quantifies the percentage of people who have not gone to the doctor, or were dismissed by their physician, but might need medical attention (12.4%). Future research may include developing medical education to improve the physician's response to seemingly unimportant complaints, and lessening the stigma associated with going to the physician.

POSTER 44

Microbial Diversity of Built Environments and its Effect on Human Health

Lukeman Forgah, Shahnewaz Azad, Calvin Atieku, and Navid Rohan
New York University—BEST Program

Bacteria are the most ubiquitous domain of life on Earth. To identify and analyze the microbial diversity of a built-in environment, bacterial samples from various locations in a built environment were collected. From its deoxyribonucleic acid (DNA), the microbial diversity of that environment could be understood. Samples from various high-traffic locations within a building were collected, and genomic DNA from a specific DNA sequence was amplified through a PCR and was examined. Subsequently, the DNA was sequenced and put through a barcoding procedure to identify the bacteria. Although most microorganisms are rather helpful, many diseases are spread through bacteria. The spread of pathogens are perpetuated by certain materials in unsanitary conditions. The goal of this investigation is to determine which materials produce a higher population of benign or pathogenic bacteria. This information allows us to work towards an environment that is built with materials that are optimal for human health.

POSTER 45

Autism Spectrum Disorder (ASD)

Jaden Kwakye and Alvin Rogers
College of Staten Island

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders that impair social interactions. Autism affects 1 in 68 children between the ages of 18 months and five years of age,and the disorder is rising at a rate of 10%-15% each year in the United States. Through education and public awareness, Autism can be effectively addressed. This research reviews causes, symptoms, early intervention methods, and the impact of autism on patients and family members of ASD. Genetics and chemicals are causes of ASD, and parental age presents a risk, with women over the age of 40 presenting a greater risk. Early interventions that help children under the age of three learn effectively are discussed. Autism has a long lasting impact on patients and family members, and although there may not be a known cure, increased awareness and early intervention techniques are beneficial to patients.

POSTER 46

Humanity vs. C. diff--The Fight Against the Superbug

Daylin Layne, Dennis Thomas, Jr., Micaela Witcher, and Joshua Motielall
New York University

Clostridium difficile (C. diff) is a bacteria found in human intestines, and is transmitted through direct touch or food contamination. This bacteria releases harmful toxins that attack the intestines and other organs in the gastrointestinal (GI) tract . One major effect of C. diff is severe diarrhea. Many hospital patients have been identified with C. diff, causing an outbreak of C. diff cases in New York City. The Center for Disease Control and Prevention (CDC) has stated that there is an increase of C. diff outside of hospitals. This group believes that poor sanitation in public places as a major contributing factor in the C. diff outbreak. We will test our theory by taking samples from highly populated public places and hospitals and testing them to determine what is behind this huge epidemic.

POSTER 47

Dissociative Identity Disorder (DID)

Mariam Mohamed
College of Staten Island

Dissociative Identity Disorder (DID) is a condition characterized by chronic post-traumatic dissociative psychopathology. The first known case dates back to 1791, and currently, roughly 3% of the population has this disorder. This research is a review of published data, such as magnetic resonance imaging (MRI) scans, trigger mechanisms and the effects of DID on the brain, and the effects of public misconceptions on patients. Scans show specific parts of the cortex triggered and affected by DID. It is also shown that patients with DID have a significantly smaller Amygdala (19.6%) and Hippocampus (31.6%). People with DID are commonly stereotyped as criminals or sociopaths, due to reporting by media outlets. However, data shows that less than 1% fall within this category. With proper diagnosis, care, and support, patients with DID are capable of living happy and productive lives.

POSTER 48

The Effects of Social Relationships and Leisure Activity in the Overall Well-Being of Older Adults in a Nursing Home

Mariam Osei-Poku
Mercy College

An aging population is a significant public health issue for our society (Diehl et al., 2014). Approximately 524 million people who are 65 years or older, face age-related diseases. Physical activity (PA) reduces the risk of mortality and maintains physical and cognitive function (Smith et al., 2017). Recent studies show that increased leisure activity (LA) improves health in older adults. This study explores the ways in which survey results demonstate the improvement in the health of older adults when they engage in PA and LA. The participants ages range 65-100 years of age, are male and female, and live in a nursing home in New York. The study hypothesizes that residents of nursing homes involved in PA and LA will improve their overall health and wellness. The results of the study supported the hypothesis that showed that 95% of the residents who participated in PA and LA improved their overall wellness.

POSTER 49

Preventing the Spread of the Flu

Isabella Perkins
Syracuse University

It is estimated that 12,000-56,000 people die each year from flu-related symptoms. These casualties could possibly be lowered if the correct measures are taken to prevent its spread. The topics covered in this study consist of the effects of the flu on people of different ages, the origin of the virus, and under what conditions the virus prospers. Secondary quantitative research shows that young children and elderly people are more susceptible to contracting the virus due to weakened immune systems. This research will search for precautions to prevent the spread of the virus. Overall, this research seeks to discover the ways in which humans can eliminate the spread of this seasonal, and sometimes deadly, virus.

POSTER 50

The Impact of Metformin & A Carbohydrate-Modified Diet on Weight Management and the Reduction of the Incidence of Diabetes Among High-Risk Patients

Sarai Sales
Mercy College

Diabetes is an illness that causes the body to have abnormal blood sugar levels, and it can increase healthcare costs and mortality rates. In previous studies, participants underwent intensive physical interventions, but this study observes participants as they complete their normal day-to-day activities. The purpose of this project is to evaluate metformin and a carbohydrate-modified diet, and whether it will result in weight loss and no future development of diabetes. This project is a retrospective chart review study that featured 40 females and males over a 10-year period. The Statistical Package for the Social Sciences was used to analyze the data. A paired t-test showed that the mean weight difference between pre- and post-measurements was statistically significant (p-value <.000). While following the diet plan and medication, the subjects lost weight and did not develop diabetes. This study represents promising findings that can improve the status of the diabetes and obesity epidemic.

POSTER 51

Corrosion of Fixed Orthodontic Appliances in Saliva

Quincy Simmons and Daniel Singh
Iona College

Corrosion of orthodontic appliances in the oral environment may be absorbed into the body and cause localized or systemic effects. The corrosion behavior of stainless steel orthodontic appliances in artificial saliva has been investigated. Simulated half arch fixed orthodontic appliances were constructed with stainless steel brackets and wires. Artificial saliva, as corrosive media, has been prepared at the lab with different pH values of 6, 7, and 8. The corrosion rates of the appliances at room temperature were calculated at different immersion time using weight loss technique. The corrosion rates with time were plotted for each pH value. Comparative analysis was done, and quantities of the dissolved metal in the saliva were counted. Results showed low corrosion rate ranged from 2.5x10-4 mg/day to 6.8x10-3 mg/day depending on the time and pH value.

POSTER 52

Say Goodbye to Compression Garments: A Novel Design for a Lymphedema Flex-tech Sneaker

Chung (Cami) Tran and Nguyen (Nina) Tran
Albany Medical College

Lymphedema is swelling of the appendages due to lymphatic system blockages from cancer treatment, diabetes, injury, etc. Treatment of lymphedema in the legs can be disabling to patients, as it entails wrapping one's legs and feet with bandages, which causes discomfort when walking, and makes wearing shoes nearly impossible. We hypothesize that a special lymphedema shoe can be designed and produced to help patients move with minimal discomfort. We have collected data from patients and health professionals in the field to help with the design of this product. We have modeled our prototype using Solidworks technology. Benefits not only include affordability, but the dual design will allow it to be used as a shoe and as a compression bandage for the ankles and feet. Our design will be 3D printed using a flexible filament material, and ongoing analyses will continue to examine patient wearability and function.

POSTER 53

The Relationship Between Diet Quality and Mental Disorders in Youth

Nayeli Valdez
Columbia University

A number of studies have observed an inverse relationship between diet quality (e.g., dietary fiber) and mental disorders in adults. Unlike studies in adults, very limited research has been conducted that examines the association in children and adolescents. Moreover, the association between diet, mental health disorders, and stress should be examined during early childhood development, as early stress is one of the major predictors of mental health disorders.

POSTER 54

Science Meets Service: Mouthguard Project-Oral Health as an Indicator of Overall Wellness

Dondrell Vance, Jr., Jessica Shaw, and Isabelle Carter
SUNY Buffalo School of Medicine

In an effort to meet the Healthy People 2020 objective to "improve the health of all Americans," UB Medical STEP students participated in several events to support their chosen initiative of oral healthcare awareness as it relates to total health. Collaborating with UB Dental Medicine and the Mayor's Clean Sweep Team, they traveled door-to-door distributing oral healthcare pamphlets and supplies throughout several Buffalo, New York communities. At a local high school they met with athletes to share oral health information, fabricated mouthguards, and to express the importance of wearing them during sporting activities. At a church they gave an oral health education presentation, and provided tutorials. Further considering how to effect global change, they researched the Healthy People 2020 initiatives for Trinidad/Tobago. To "foster a healthy and productive population through preventive care,"they traveled to Trinidad/Tobago where they repeated their initiative efforts in comparable communities, twinning their project locally and internationally.

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The Power of Enzymes
Samantha Andersen
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Effect of Plastic Pollution on the Environment
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POSTER 57
Study of Tropospheric Ozone Using OSIRIS and TOMS Data
Ruth Ogbemuolisa
Adelphi University

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The Power of Enzymes

Samantha Andersen
Clarkson University

The production of carbon dioxide from burning fossil fuel is a big contributor to climate change. Ethanol Biofuel is a renewable resource that produces less greenhouse gas emissions, when compared to fossils fuels. The goal of this research is to explore a more efficient way to produce biofuel to make it as practical as fossil fuel. An analytic model was used to determine the most efficient process for producing biofuel. Different amounts of yeast, cellulose, and cellulase were combined to compare the changes in the production rate of CO2. The cellulose, cellulase, yeast solutions produced a significant amount of carbon dioxide, indicating that there was a large amount of ethanol produced. As a result, the cellulose, cellulase, yeast solutions provide an alternative way of producing biofuel that warrants further investigation for large scale biofuel needs.

POSTER 56

Effect of Plastic Pollution on the Environment

Dorothy Atubiga, Joshua Bell, and Kayla Myers
Stony Brook University

The purpose of this project is to investigate how plastic pollution effects the earth. In the United States, more than 38 billion water bottles end up in landfills annually, and 80% of the plastic that is found in the ocean originates from pollution on land. To relate this problem to the average home, the amount of plastic waste that was produced in a month was recorded. Data was collected by recording the number of, and weight of, water bottles used in two different households. Our research shows that the average household produces 1.7kg-3.3kg of plastic waste per month, and that the amount of plastic pollution generated by each household varied based on family-size and general knowledge of the effects that plastic has on the environment.

POSTER 57

Study of Tropospheric Ozone Using OSIRIS and TOMS Data

Ruth Ogbemuolisa
Adelphi University

The goal of this project is to use OSIRIS and TOMS ozone data to find areas on Earth where the concentration of tropospheric ozone is systematically large. This is done by subtracting OSIRIS stratospheric ozone maps from TOMS total ozone maps. OSIRIS ozone data are unique because OSIRIS is the first instrument that allows one to create global maps of stratospheric ozone every second day. By using the combination of OSIRIS and TOMS ozone data one can produce global maps of tropospheric ozone.

POSTER 58

Cleanup of Oil Spill from Water

Joshua Pamphile and Alina Rodriguez
Iona College

Oil spills occur in oceans, lakes, and rivers, and are considered to be the most common ocean pollutant. Using absorption to remove an oil spill has been investigated. To mimic an oil spill, this research uses a lab to prepare a mixture of oil and water, and uses sawdust as an absorbent material because it is relatively cheap and environmentally friendly. The effects of contact time and weight of the absorbent were measured. The ratio of oil to water absorbed was calculated and plotted at room temperature. The density of the absorbent before and after oil absorption was measured to find the longest floating time. Comparative analysis was done to show the efficiency of the absorbent. Results showed that the oil to water absorption ratio ranged from 3.9-11.5, with an efficiency of 80% depending on the condition of investigation.

POSTER 59

Comparison of Beta-Carotene Content in Fresh Spinach, Spinach Powder, Fresh Carrot, and Carrot Powder

Fatima Azimova, Kadiatou Diallo, Mayra Delgado, and Mia Brito
Barnard College

Beta-Carotene is an antioxidant that converts to vitamin A, plays a very important role in health, and is responsible for the red, yellow, and orange coloration of some fruits and vegetables. Using flash column chromatography, beta carotene was extracted from various sources, such as fresh spinach, spinach powder, and vitamin A supplements. The amounts of beta-carotene present in these were measured and compared to determine which was the best source of this essential vitamin.

POSTER 60

An Analysis of Heavy Metal Distribution in Sediments Along a Polluted Riverine Ecosystem

Michael Borrayo and Jason Rattansingh
Stony Brook University

The Forge River is a heavily polluted riverine ecosystem due to historical duck farms, industrialized agriculture, and effluence1. Previous research has analyzed the distribution of light and heavy elemental pollution, but top, bottom, and riverine sediments have not been analyzed. The aim of this research is to evaluate heavy metal counts in riverine, top, and bottom sediments. To determine the relative counts of heavy metals, sediments samples were homogenized and analyzed at the Sub-Micron Resolution X-ray Spectroscopy Beamline. Data indicates that heavy metals that include As, Co, Cu, Fe, Ga, Mn, Ti, V, and Zn were present throughout the top and bottom sediments of the river, with higher counts present in bottom sediments. This may be attributable to marine traffic and pollutants being present before dredging occurred to decrease contaminant 1 in 2006, but a point source cannot be determined without a XANES analysis.

POSTER 61

Why Is There Caffeine In My Decaffeinated Coffee? Caffeinated Decaffeinated Caffeinated Coffee?

MaCaleb Earle, Hope Kilcollins, and Kaitlyn Montgomery,
Clarkson University

Coffee is one of the most popular drinks in the world, and is a well known source of caffeine. For a number of reasons—such as health issues or not wanting to stay up late—many people choose to drink caffeine-free coffee. The goal of our project is to test the caffeine levels present in coffee labeled 'decaffeinated' to determine which are truly caffeine-free. Caffeine levels were tested by chemically extracting caffeine from commercially available coffee and comparing the mass of the extracted caffeine. Multiple brands of caffeine and decaffeinated coffee were used to form a baseline and create a comparison. It was determined that while decaffeinated coffee has significantly less caffeine than regular coffee, traces of caffeine was detected at various levels in all brands.

POSTER 62

Go Green to Play Clean? Investigating the Effectiveness of a "Green Wall" to Reduce T.R.A.P. Pollution in an Urban Playground

Thiri Htun, Antonio Tarver, and Rafal Othman
SUNY Buffalo

People living in environmental justice areas near major roads are exposed to higher levels of TRAP (Traffic-Related Air Pollution), and are experiencing adverse health effects. Communities are looking at different ways to reduce exposure to pollution, and some solutions include urban forestry and green wall installations. Our research evaluated the effectiveness of artificial green walls, which are designed to reduce pollution at a playground near a busy road. Six portable monitoring stations were used to measure pollution near the road and the playground. Three different green wall conditions were tested: a high wall, a low wall, and no wall. Although concentrations were sometimes lower for the high wall, this result was not observed for all stations. Sometimes pollution levels in the park increased based on traffic and green wall locations. Additional experiments need to be completed to test different wall heights, wall locations, and other factors that may cause increased pollution.

POSTER 63

THE DANGERS CAUSED BY HIGH TEMPERATURE HOME APPLIANCES

Ana Martinez, Gianna Milfort, and Naomi Hockaday
Hostos Community College

Several home appliances can be very hot during usage, leading to safety issues—examples include hot plates, consumer irons, and stoves. Previous studies indicate that over 63% of victims of hand injury are young children. This research is conducted to investigate efficient ways to cool high temperature home appliances to help ensure the safety of users and children. An experiment is conducted by raising the temperature of a consumer iron to 192°C. The device is cooled by itself while a digital thermometer and E4 infrared camera are used to monitor its surface temperature. It is hypothesized that the angular position of the surface effects its cooling rate by natural convection. Our data show that the surface cools faster in the vertical position, however, this result is enhanced by fanning. In conclusion, this study will participate in the safe usage of hot home appliances to prevent injury.

POSTER 64

Phytoremediation of Ca2+ and Fe2+ by Water Hyacinth Plants

Kelechi Nnaji
Fordham University—Rose Hill

As pollution increases, so does the amount of metallic ions in water. Phytoremediation of water by plants, such as water hyacinths, will naturally reduce the amount of metals in water. This study was conducted to determine the amount of calcium and iron ions that plants can absorb over a period of time. Water hyacinths were placed in a beaker of calcium, and in a beaker of iron ions. The calcium and iron concentrations were measured hourly, and the iron levels in the water steadily decreased, but the calcium levels decreased, and then rose again. Because calcium levels rose, but iron levels did not, it was concluded that plants like water hyacinths expel calcium ions once saturated.

POSTER 65

The Effects of Diketones on Cell Regeneration of Dugesia dorotocephala

Kriyal Patel
Farmingdale State College

Vaping, a supposedly safer alternative to conventional cigarettes, is very appealing, especially to younger generations. However, vapes contain a plethora of substances that include diketones such as diacetyl and diathylene glycol. The safety of these substances is questionable to users, and to those around them. Dugesia dorotocephala (Planaria) were utilized to explore the effects of secondhand smoke from vapes. Substances affecting Planarian regeneration have been correlated to carcinoma cell regeneration in humans. Ten beakers containing 20 intact or split Planaria were set up in identical systems, and beakers contained 100%, 50%, or 0% of diacetyl or diathylene glycol. Gas valves were used to regulate the gas flow into each beaker. To evaluate regeneration rates of the Planaria, the systems continued for one month. Planaria regeneration did not occur in either of the systems containing diacetyl or diathylene glycol. Results indicate that diketones affect the regeneration of Planaria.

POSTER 66

A Novel Filtration Device and Its Efficacy in Removing Per- and Polyfluoroalkyl Substances in Waters Proximal to Fire-Fighting Training Grounds

Abigail Romero
Farmingdale State College

Per and polyfluoroalkyl substances (PFAS) enter the environment via aqueous film-forming foams (AFFF). This is especially prevalent around fire-fighting training grounds. AFFFs and PFAS make their way into groundwater aquifers, and eventually into drinking water. Given PFAS proven toxicity, its presence in the environment is concerning. This study examines the effectiveness of a novel filter construction and its efficacy in filtering PFAS near firefighting training grounds. A novel filter was constructed utilizing granular activated carbon, ion exchange resins, and calcium bentonite modified with quaternary amines. Ten water samples were collected from multiple aquifers across Suffolk County, NY. Samples were filtered using the newly constructed filters and were sent to TestAmerica for PFAS testing. More than 37% of tested aquifers contained PFAS> trace amounts, while 42% of all freshwater samples tested as contaminated. Results showed the new filters were effective in removing more than 50% of PFAS from samples.

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Colorism Vs. Racism: A Look beyond the Surface

Kelis Swain, Jazmin Martin, Kedar Swain, and Nurto Hassan Bell
Buffalo State College

POSTER 67

Impact of Out-of-School Factors on School Success Among Diverse Children

Ché Johnson-McGregor
Hofstra University

The United States' national goal of narrowing achievement gaps between students of lower income, middle-class income, or underrepresented minority groups and Euro-Americans, has yet to be realized. No Child Left Behind (NCLB) and Race to the Top legislations have primarily relied on testing in attempts to accomplish this goal; this while ignoring the influential role of demographics and out-of-school factors (OSFs) in generating existing gaps. By dismissing these factors in local, state, and national policy evaluations, failure is inevitable. In efforts to move toward a real discussion of providing equitable education in the US as possible influences in third, fourth, and fifth grade math and English Language Arts scores, this study examines the role of several parental and home variables, such as: parental education, ethnicity, home language, immigration generation, opt out views, level of homework help, school technological facilities, student chores, extracurricular activities, and student aspirations. This is completed by analyzing questionnaire results, unpaired t-tests, correlations, and multiple regressions against two dependent variables.

POSTER 68

Fast Foods: The Mood Swingers

Kassandra Melendez
Adelphi University

The purpose of this project is to determine whether consuming fast foods has a negative influence on the mood of teenagers. People who ate fast foods were subjects in the experimental group, and people who did not eat fast foods were subjects in the control group. The surveys created for both groups were compared to determine whether the moods in each group differed. Based on Dr. Sanchez-Villegas' research study, it is hypothesized that consuming fast foods will cause negative mood changes in teenagers. Also, this experiment may lead to discovering that the food habits of the control group may cause them to experience positive mood changes.

POSTER 69

Student's Knowledge and Opinions Concerning Genetically Modified Foods: A Community Assessment and Awareness Project

Ayana Thompson, Noah Baldon, and Amari Elie
SUNY Buffalo

Genetically Modified (GM) foods, which are products of (GM) organisms, is a controversial topic that has resulted in strong opinions about its usage. How are opinions formed in the community, and does a student's educational-level, major in school, or parent's occupation have an influence on his/her opinions of the use of GM foods? The purpose of this project is to research students' opinions of GM foods, and whether there is an influence of opinion once one's knowledge of GM foods is increased. A baseline survey with general questions about GM foods was given, and an educational presentation was provided. The presentation was followed by a survey that asked specific questions about presentation information and student opinion. Our data suggests that students who have a strong foundation in science, and a parent in a STEM profession, demonstrated an opinion supporting the use of GM foods before and after the presentation.

POSTER 70

How Has Society's Opinion Of The LGBTQ+ Community Changed In The Last Five Years?

Nadia Atkinson and Alex Horten
Clarkson University

In recent years, society has become much more accepting of the LGBTQ+ community . The goal in developing this project was to confirm and quantify the increase in acceptance since 2013. The issue of acceptance was invesigated by assuming that if an individual believes that they had a good experience coming out in their community, it demonstrates acceptance. Thus, we obtained data by reading 'coming out' stories shared online betwwen 2013-2018, and compared the number of positive, neutral, or negative experiences shared. We originally hypothesized that there would be a 10% increase in acceptance since 2013; our data drive results found that there was a 9.3% increase in acceptance over the past five years, which is in close agreement with the hypothesis.

POSTER 71

Exploring the Association Between Social Support, Racial/Ethnic Background, and Academic Performance

Ayooluwa Akintayo and Jessica Figueroa
Fordham University—Lincoln Center

In the public education system there are many inequalities that influence the academic success of students. This study examines the association between social support, racial/ethnic background, and academic performance. Data from a larger study was analyzed to better understand how social support contributes to academic performance in students of diverse racial/ethnic backgrounds. Our sample, consisting of 215 high school students in New York City, analyzed perceived social support, academic grades, and Regents scores obtained from the Department of Education. We found that social support was a better predictor of Regents scores, but not grades. The relationship between social support and Regents scores was strongest in Asian students. Asian students also had significantly greater overall academic outcomes. Black students reported marginally less peer social support. We conclude that measures of social support should consider family structure and cultural nuances.

POSTER 72

Music: A Mood-Altering Memory Aid?

Daysia Augustin
University of Rochester School of Medicine and Dentistry

Though the relationship between music and emotions, and between emotions and memory, are thoroughly researched, the possible connection between memory and music has been left relatively unexplored. This project aims to determine whether different genres of music aid short-term memory, and whether there is a connection between emotions that music evoke and the ability to recall information. Using a list of numbers and replication of grid shapes, students were tested to determine whether music genres and the emotions associated with them, affect recall ability. On both tests, classical music consistently soothed subjects and improved scores by an average of 32.15% from baseline data. Interestingly, emotion correlated more strongly with memory than music, as negatively-rated genres decreased test scores. Further research for why soothing music improves memory could benefit students in the classroom environment.

POSTER 73

The Composition of Turquoise Samples

Jahnya Brown
City College of New York

The purpose of this project is to determine the authenticity of turquoise sold at expensive jewelry stores. The experiment involved analyzing the chemical composition of store-bought samples, and comparing them with authentic turquoise samples. This was done by using X-ray techniques such as XRF and SEM-EDS. The X-rays disproved the research hypothesis that turquoise samples from expensive jewelry sales were not genuine. These findings led to the belief that the authenticy of samples were not determined by price, but often times by the location in which the sale was completed. It was discovered that turquoise that originates in the Middle East was not as genuine as those found farther away.

POSTER 74

Does Gender Affect How Teens View Sexual Harassment?

Ariely Cortes
University of Rochester School of Medicine and Dentistry

Roughly 8 of 10 students will experience sexual harassment while completing formal education. This all-time high epidemic needs to be addressed. The purpose of this research is to learn the ways in which teens view sexual harassment, and whether education is needed. Surveys containing different sexual harassment scenarios were created and distributed to two high schools in Rochester, New York. Ninety-eight students participated—57 females, and 41 males. An average of 70% females and 61% males correctly identified the serious scenarios; and, 76% of females and 51% of males were able to correctly identify the questionable scenarios. This suggests that teens have a general idea of what sexual harassment is, but struggle to identify questionable scenarios, thus showing a need for education. Future research could explore the effectiveness of gender-specific education in high school health classes.

POSTER 75

Can the Circle Theory of Environmental Range Determine the Residential Location of a Serial Burglar?

Shannan Cree
SUNY Potsdam

This project was designed to determine the effectiveness of the Circle Theory of Environmental Range in determining the most probable residential location of a serial burglar. The study analyzes data on burglary locations and applies the theory to determine the residential location of a criminal. The main materials used were a pencil, a computer with internet access, ZeeMaps, a ruler, a protractor, a printer, and crime data. The pattern of offenses and the location of the first offense suggests a base located near Hyde Park. The evidence concluded that the Circle Theory of Environmental Range can help in finding the most probably location of a serial criminal. However, the location determination is not 100% certain, and other factors in the case have to be weighed. This theory is useful in determining a general location for serial criminals.

POSTER 76

Like It or Not?

Destiny Fung-Chung, Krystal Seda, Kevin Martinez, and Jamie Arias
Bronx Community College

Has the practice of using social media for political purposes put privacy, safety, and democracy at risk? In the development stages of Facebook, the mindset was to move fast, break things, and deal with the consequences. By using social media, is the current administration following the same mantra to run our government, and compromise national security? By strategic and undisclosed sharing of information, social media is influencing political policies and outcomes. Research included reviewing print and broadcast news coverage, social media, websites, and books. This research determined that social media use in politics is putting privacy, safety, and democracy at risk. To prevent history from repeating itself, there is a need for more oversight on the ways in which social media companies and high-ranking officials utilize social media platforms, and a need for an increase in data protection and security.

POSTER 77

Internalizing Symptoms in Families Impacted by Pediatric Type 1 Diabetes (T1DM)

Biraj Ghimire
Fordham University—Lincoln Center

Pediatric patients and their parents may experience psychological strain due to the life-long management requirements of Type 1 Diabetes (T1DM). Some research shows that these patients display symptoms of depression (Silverstein et al., 2015) and anxiety (Rechenberg et al., 2017), and their parents may also display similar symptoms of distress due to their children's illness (Hessler et al., 2016). Many families face symptoms yet, for a number of children, the disease remains untreated (Silverstein et al., 2015). This study examined the effects of internalizing symptoms among T1DM and untreated short stature (SS) patients as a comparison to help clinicians identify patients who might benefit from increased support.

POSTER 78

Social Anxiety: Strategies to Cope

Ariana Gonzalez, Hannah Skotarczak, and Ruben Dimas
Fulton Montgomery Community College

Social anxiety is a growing concern, and this experiment will test nutritional and athletic treatment methods that are believed to help reduce this anxiety. Individuals took a clinically validated test to determine whether they have social anxiety. The participants who tested positive were separated into two equal groups: nutritional remedies and athletic remedies, and each group followed their respective program for four days. Each day, the nutritional group consumed food that was believed to reduce anxiety, and the athletic group completed an activity that helped to reduce anxiety. After day four, the individuals attempted to complete a list of challenges that is considered difficult for socially anxious people. After completing the experiment, data was analyzed, and it was found that athletic remedies were more helpful. These findings and methods should be shared in schools to help students with social anxiety.

POSTER 79

Handwriting Forgery

Marissa Hawkins
SUNY Potsdam

The purpose of this study is to detect signature forgery in handwriting samples by using common handwriting characteristics, such as line quality, slant, and fancy writing. This experiment used twenty handwritten signatures from ten individuals. Each individual was required to forge the researcher's signature using their dominant and non-dominant hands. The forged signatures were then analyzed and compared to the original. With the use of comparitive analysis, the forged signature will display different slant and line quality characteristics when compared to the original signature. Although some signatures looked similar, the comparison of signatures supported the hypothesis that forged signatures showed characteristics different from the original in spacing of words and letters, slant, pen pressure, and placement of diacritics. With knowledge and use of basic handwriting comparison characteristics, signature forgeries can be identified.

POSTER 80

"Face"ing Reality: Exploring Perceived Attractiveness on Self-Esteem

Syadda Husai and Ashley Rivera
Fulton Montgomery Community College

Everyone faces issues with self-esteem at one time or another because they tend to over criticize themselves based on reference groups. If a person is actually more attractive than they think they are, then knowing this may increase their self-esteem. This experiment examined the ways in which others perceived the attractiveness of others, as compared to how they perceived themselves. To do this, participants were shown pictures of people and asked to rank the attractiveness of each. The two rankings showed that people are more attractive than they believe themselves to be, and getting positive feedback from anonymous judges led to an increase in self-esteem. The implication of these results may be that if more people had higher self-esteem, there would be fewer mental health problems, fewer eating disorders, and lowered suicide rates.

POSTER 81

Dusting Up the Details

Keyana Johnson
SUNY Potsdam

The purpose of this project is to determine whether a fingerprint can be effected by the color of fingerprint powder. For this experiment, four fingers were pressed on a glass plate and dusted with seven different colored powders (red, black, grey, white, green, yellow, and orange). The fingerprint patterns were then transferred, via tape, to white or black paper for easy visibility. Impressions of the ear and lips were also tested to determine how well the powders picked up impressions other than fingerprints. Of the seven powders, it is believed that the black powder will yield the most visible fingerprint impression because of its common use in the forensics field. This experiment showed that certain powder colors allowed details in fingerprint impressions to be more visible. While each powder color was effective, the impressions supported my hypothesis that the black powder was the most effective for viewing fingerprints.

POSTER 82

How Colorism Affects Youth

Tianna Layne
Baruch College

Colorism is an avoided issue in society, it is viewed in the media, and it is spread throughout many communities. The purpose of this study is to determine the affects of the toxic nature of colorism on youth, specifically high school students. It is hypothesized that students will have a negative view of colorism, and negative connections toward its effects. A sample of 10 high school students in grades 9-11, with an age range of 14-16 years, were asked to complete a paper questionnaire. Inconsistent with my hypothesis, majority of the students who took the questionnaire responded that colorism has no negative affect on their self-esteem. A few students stated that colorism has not negatively affected beauty standards, but has helped it to improve. It was concluded that this sample of students has high self-esteem, and are not deeply impacted by colorism.

POSTER 83

A Big Problem from a Small Device: A Call for Vaping Education in Capital District Schools

Myriam Moqbil and Sunnah Yasin
Albany Medical College

While the use of cigarettes is declining, e-cigarette products that provide a fruity flavor, along with a nicotine high, are increasingly popular. "Vaping" is a common term used among students for use of e-cigarette products. With a drastic increase in popularity, school administrators are struggling to monitor the use of these easily-concealed products. Based on knowledge of school policy changes in our region, it is hypothesized that local use prevalence is higher than the national average, and that education in our schools about the dangers of these products is lacking. Six Capital Region schools were surveyed to determine prevalence rates and trends. Preliminary data for 2017 shows that local students in grades 9-12 have a usage rate of nearly 30%, compared to the national usage average of 11.7%. Data was collected on health education, knowledge of risks, and reasons for use; and, analysis is underway. The hope is to assist schools in addressing this emerging epidemic.

POSTER 84

Mental Health Below the Years

Kiara Ortiz
Baruch College

Mental health disorders are prevalent in society, especially among college students. The purpose of this study is to explore college students' knowledge of treatment options for the mental health disorders of anxiety and depression. It is hypothesized that the majority of students will select medication as a treatment option as opposed to therapy. A sample of 48 undergraduate students with a mean age of 19 years, and five school psychologists in New York, were asked to complete a paper survey, and a survey via Google Forms. Inconsistent with the hypothesis, 67% selected alternate treatment methods that excluded medication. Eighty percent of school psychologists believed that it is important to educate students about their diagnosis and possible treatment options. This sample of students is knowledgeable about multiple options for treatment of anxiety and depression. Possible factors contributing to these results will be discussed.

POSTER 85

The Blind vs. The Sighted: Spatial Awareness and Location

Luis Perez, Dalia Quinones, and Antonio Reyes
Fulton Montgomery Community College

The purpose of this project is to determine whether a blind person is able to better "see" their surroundings, when comparec to a sighted person. The experiment involves recording whether students knew their surroundings after being given a set of instructions to move around the school. This was done by having two groups: sighted people who are blindfolded, and a small group of blind people. Each group performs the same movements, and at task completion, each person is asked to indicate their location. Three trials were conducted with various end points. The measurements confirmed the hypothesis that sighted people do not pay attention to their surroundings (non-visual details) as much as blind people. These findings helped to provide insight into the ways in which blind people have heightened senses that enable them to be more attentive to their surroundings. We discovered that despite the blind not being able to see, they often better adapt to physical surroundings moreso than sighted people.

POSTER 86

UALES Relevancy of Life Events: The Interaction between New York Adolescents and Socioeconomic Status

Joshua Seebarran and Karla Contreras
Fordham University—Rose Hill

The objective of this study is to investigate whether factors such as race and income affect the type of life events that adolescents experience. The impact of life events and relevancy was assessed through the Urban Adolescent Life Experience Scale—Revised Version (Allison, Burton, Marshall, Febles, Yarrington, Kirsh, & DeVries, 1999). The current study aimed to analyze the experiences of teenagers from different backgrounds based on estimated socioeconomic status, race, and ethnicity. When compared to Caucasian adolescents, African American/Black adolescents rated negative family experiences as more relevant. New York adolescents from low socioeconomic backgrounds found negative self-experiences, and negative experiences involving family members as more relevant, when compared to adolescent from high socioeconomic backgrounds. Overall, it was found that minorities more closely relate negative life events.

POSTER 87

Health Care Disparity

Zora Spence
Syracuse University

Since its European discovery, America has been plagued by a long and complicated history of rocky race relations. This issue has carried into the modern era, and is observable in the American healthcare system. A clear division in care is detectable in the quality and accessibility of care between minority groups and white people, which is specifically seen in higher infant mortality rates and shorter life spans in Africans Americans. Understanding this division will lead to awareness and possible solutions. The questions motivating this research are: What is the health care gap? and What can be done to resolve this issue? A major process of solving this issue will be to analyze the statistics while taking account of experiences.

POSTER 88

Colorism Vs. Racism: A Look beyond the Surface

Kelis Swain, Jazmin Martin, Kedar Swain, and Nurto Hassan Bell
Buffalo State College

In society, colorism has affected many lives. Colorism is discrimination against individuals in the same race based on differences in skin tone. It affects everyone, although many are not aware. The purpose of this research is to listen to past experiences, raise awareness, and educate others. Many people of different ethnic backgrounds were asked to share their experiences of being treated different because of their skin pigmentation. It was discovered via surveys that more people in our community have faced this issue at least once in their lifetime. Based on our findings, we discovered that some were unaware of colorism, and many have faced it firsthand. This project identified the demographics of people being affected by colorism. It was also to spread awareness to those not informed of the differences between racism and colorism. This research seeks to address the systematic and sociological faults of racism and colorism.

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Sports Medicine: Components of the Professional Athlete's Throwing Arm

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Synchronized Drones: Expanding Aerial Vision

Jenny Shi, Kevin Gomes, and Jason Wang
Borough of Manhattan Community College

POSTER 89

Impact of Using Generic Versus Original Cellphone Chargers

Faith Aisogun, Precious Omoike, and Daniel Aisogun
Hostos Community College

Cellphones are widely used for communication and other daily activities such as GPS, social media, and entertainment. These electronic devices need to maintain an optimal charge to ensure effective operating conditions. In many cases, cellphone owners fail to use the original charger, which may lead to the device overheating. The objective of this project is to investigate the impact of using generic chargers to charge cellphones. An experiment using a digital thermometer and an E4 infrared camera was conducted to monitor the surface temperature of two identical cellphones powered by both types of chargers. It was observed that cellphones using original chargers charged 20% faster, as compared to generic chargers. Also, the generic charger overheated by 20° when compared to the original. If one uses the original charger, it saves time and may reduce the risk of cellphones overheating, which is likely to increase the lifespan of the cellphone.

POSTER 90

3D Printed Myoelectric Prosthetic Arm—MPA21

Sherwin Bacchus, Dahrel Cadore, and Jalen Guerrero
Medgar Evers College

The myoelectric prosthetic arm is a great technological advancement that utilizes electrical signals within the arm muscles of an amputee, allowing amputees to regain a functional arm(s). However, these devices are excessively expensive, as the average cost of a prosthetic arm is $20,329 (The Department of Veteran Affairs, 2010). The purpose of this project is to create a much more affordable myoelectric prosthetic arm, MPA21, from parts printed from the *Lulzbot Mini 2* 3D printer, and utilizing Polylactic Acid (PLA) filament with the software Cura. The overall design of MPA21 was developed on two Computer-Aided Design (CAD) programs—Fusion360 and Autodesk Inventor. MPA21 uses seven servo motors for the movement of the fingers and elbow. MPA21 overall production costs were $150, much more affordable than the average prosthetic arm, which will allow all amputees the chance to regain arm function.

POSTER 91

Undocumented U.S Immigrants and Asylum Seekers Navigating Immigration & Customs Enforcement (ICE) Through Computer Coding

Kelly Chen and Kimarah Bates
John Jay College of Criminal Justice

Navigating the United States Immigration and Custom Enforcement (ICE) service is difficult and costly for undocumented immigrants and asylum seekers. The objective of this project is to create a free, open-source computer-based application program in JAVA that is designed to assist undocumented immigrants and asylum seekers in navigating the process of becoming a U.S. legal resident or U.S. legal refugee. The computer program will prompt the user to answer a series of questions regarding current U.S. residency status. After completion, the program will return information relevant to the user regarding the likelihood of being granted legal status. This JAVA-based research program will provide relevant information to undocumented immigrants in ways to navigate a complicated and costly ICE system.

POSTER 92

Using Machine Learning to Aid in the Breeding of Neoglyphidodon nigroris

Daniel Lucas
Farmingdale State College

Endangered species are of profound concern, and different technologies are being developed to increase species survival. The goal of this research is to create functional software that will enable a user to detect the eggs of Neoglyphidodon nigroris. A Python script was developed to collect time-lapsed data of fish tanks that contain breeding pairs of Neoglyphidodon nigroris. This data was then used in Custom Vision to create the machine learning program. From this, XCode was used to make an app that detects and monitors eggs, using a camera to collect real time data. Although this program will not solve all problems faced in breeding, it can increase the average life expectancy of spawns, allowing more to fully develop into adulthood. From this research, a cost-effective way to build a machine-learning program that is applicable to increasing the survival of other tropical marine species was found.

POSTER 93

Designing a Wind Tunnel to Test the Air Flow Over 3D Printed Objects

David Mercado, Sanaa Greenidge, Michelle Cayetano, and Tomas Ryan
New York University

As aerodynamic engineers, our goal is to create a wind tunnel that can simulate the flow of wind past an object that is used by companies such as NASA. When constructing this wind tunnel, we began designing and building a test chamber that allows one to view the airflow over an object that rests on a base. Afterward, a fan-diffuser was created that blows visible, smooth air onto an object. Finally, an exhaust chamber was built that prevents the air from staying in the wind tunnel after use. The wind tunnel can be used to test the ways in which cars or planes react to high-speed winds, or how buildings handle wind stresses. Air can break objects that resist it, which is a serious problem for plane wings. Making more air-tolerant structures can only be accomplished by using the simulation of strong winds.

POSTER 94

Utilizing Selective Reflection in Cholesteric Liquid Crystals for Non-Destructive Visualization and Testing

Brian Monclus, Kira Parr, and Hezal Kopar
Rochester Institute of Technology

The inherent helical structure of cholesteric liquid crystals (CLC's) interacts with incident light to produce a wide range of highly saturated, reflected colors whose wavelength depends on the helix pitch. Sensitivity to changes in temperature, pressure, shear stress, chemical vapors, electric fields, and air flow makes CLC's an effective, low-cost means of visualizing the response of a test subject, as it relates to of pitch length and helix orientation. The latter is true for changes in non-destructive engineering testing applications (e.g., micro-crack detection in fabricated metal parts, semiconductor thermal mapping) and non-invasive biomedical applications (e.g. mammography, tumor detection, blood flow mapping). This work demonstratse the use of fluid CLC's in several of the non-destructive engineering and sensing applications described above, and reports on a novel method that employs polymer CLC materials in the form of temperature insensitive freeze-fractured flakes dispersed in a host fluid for visualizing air flow gradients over surfaces.

POSTER 95

Can Earth Based Technology be Reengineered to Terraform Mars?

Uchenna Obumneme, Ahmad Solman, Peter Gyasi, and Obianuju Obumneme
Bronx Community College

Can Earth-based technology be reengineered for use on Mars? Problems such as GPS, electromagnetic shielding around the planet, transportation, and habitation can be solved using electromagnetic energy grids and robotics. The National Aeronautics and Space Administration (NASA) wants to put man on Mars by 2033, and using electromagnetic grids are the foundation for 'terraforming' planet Mars.

Methods/Procedures:
1) Build Tesla coils that can be delivered to Mars;
2) Build a capsule using wood, motors, latches, and batteries that will enclose the Tesla coil;
3) Build robotic-based technologies that will best utilize the energy grid.

Using a Tesla coil to introduce an electromagnetic grid will produce a more controlled environment, and creating an electromagnetic grid around the planet will give the planet a foundation that can be used to warm up the planet and start basic conditions for life.

POSTER 96

Sports Medicine: Components of the Professional Athlete's Throwing Arm

Guled Sharif and Aye Di Htoo
SUNY Buffalo School of Medicine

Models are used in all fields—new concepts for cars, proofs-of-concept for new inventions, etc. The medical field can take advantage of recent developments in technology to help create models that represent the human body. Specifically in sports medicine, models can offer novel opportunities for medical professionals to study interactions between muscles, tendons, ligaments, and bones outside of the human body, as compared to inside. This project specifically seeks to research the interplay between the physical components of the human arm in efforts to find the optimal force and release point of professional athletes throwing a ball. This problem was approached by designing, building, and programming an articulating mechanical arm, hand, and bending elbow to simulate the expression of the human arm. We used a LEGO EV3 brick and its corresponding block programming language, which interfaces with our LEGO-built arm model.

POSTER 97

Synchronized Drones: Expanding Aerial Vision

Jenny Shi, Kevin Gomes, and Jason Wang
Borough of Manhattan Community College

When searching, delivering, or retrieving objects, effective communication is crucial to the mission's success, especially when covering a vast area. Drones are the ideal device to cover diverse terrains. By using multiple drones, an extensive range is achieved, especially when sensor data is shared, but each drone is autonomous. To formulate this, Bluetooth was utilized to assess synchronization between leader and follower drones, focusing on creating modules that can be assembled onto any drone. A PIXY camera was attached to the leader, allowing object detection. Using HC-05 modules, the leader sends signals to its followers, which acts on the leader's commands. By analyzing the proportional and integral part of the data, an efficient control strategy was developed to prepare the robots for unpredictable future events that might hinder communication and movement (e.g., such as weather). Using this result, drones can efficiently deliver and search, benefiting shipping, expeditions and rescue missions.