

**2018**

**Collegiate Science & Technology Entry Program (CSTEP)**



2018 CSTEP Research Interns in Capen Hall

**SUMMER RESEARCH PROGRAM  
RESEARCH SYMPOSIUM & LUNCHEON**

Wednesday, July 25, 2018

11:00 am – 1:30 pm

University at Buffalo

Jacobs School of Medicine and Biomedical Sciences



# PROGRAM ORDER



## WELCOME

SHANNA CRUMP-OWENS  
Director, Collegiate Science & Technology Entry Program (CSTEP)

## OPENING REMARKS

DR. GRAHAM HAMILL  
Interim Vice Provost and Dean of Undergraduate Education

## LUNCHEON & SLIDESHOW NARRATIVE

NELSON RIVERA  
Graduate Assistant

## STUDENT PERSPECTIVES

TANZANIA BUSSEY, Pharmacology and Toxicology  
TEMARA CROSS, Biomedical Sciences and Public Health  
WILLIAM PHILLIPS, Computer Science

## POSTER COMPETITION & JUDGES PRESENTATION

LAVONE RODOLPH  
Research Methods Instructor  
Doctoral Student, Computer Science & Engineering

## FACULTY MENTOR & STUDENT AWARD PRESENTATION

SHANNA CRUMP-OWENS  
CSTEP Director

## CLOSING REMARKS

SHANNA CRUMP-OWENS  
CSTEP Director



University at Buffalo

Collegiate Science and  
Technology Entry Program

Undergraduate Education

CSTEP MOTTO: "TO WHOM MUCH IS GIVEN, MUCH IS EXPECTED"

# CSTEP DIRECTOR'S MESSAGE



Welcome to the 12th Annual CSTEP Summer Research Symposium! Our 8.5-week Summer Research Program enhances the competitiveness of talented underrepresented students pursuing STEM and the allied health professions. I congratulate their dedication to scholarly excellence and research – they are exemplars among their peers. Today, we celebrate the fruition of their hard work as they present their research to peers, faculty and staff; they can look back on their efforts with pride.

Our goal was to structure a holistic, engaging, and transformative experience which provided our students with a fundamental understanding of how research plays an important role in tackling complex societal challenges. I am confident that the structure of our program deepened their understanding of research and how much their respective fields will gain from their knowledge, skills, and experiences.

A significant and effective tool in increasing the enrollment of underrepresented students in graduate programs is to provide them with opportunities to conduct research early in their undergraduate careers. Our research interns have broadened their knowledge and gained insight into critical issues, while developing analytic, leadership, and problem solving skills. In addition, this summer experience allowed them to gain a better perspective of research and its role in society. They also learned the value of teamwork and collaboration which are both essential in today's research and work environments.

To our faculty research mentors, workshop facilitators, tour guides and research methods seminar instructor which number 40 – thank you for your time, and expertise. We could not successfully execute the summer research program and create community among this diverse group of talented students without the contributions from UB faculty and staff. We value our collaborations with you and look forward to continued collaborations.

We are confident that the research experience, research methods course, seminars, and field trips fostered a sense of community while enhancing an undergraduate career. I encourage each CSTEP Scholar to continue taking advantage of the resources, opportunities, and services offered by CSTEP to make your UB experience more personal. We hope you found the support, guidance, and nurturing environment we provided to be beneficial. Also, remember the CSTEP motto: "To whom much is given, much is required." It was a pleasure to work with you.

**SHANNA CRUMP-OWENS**  
CSTEP Director

# WHAT'S IN IT FOR ME? THE PERKS OF JOINING UB CSTEP

CSTEP offers valuable tools: advisement, tutoring, paid research internships, scholarships, service learning, specialized courses and travel to conferences and workshops, which empower students to become successful in their chosen profession. Our alumni have made major contributions in both their careers and communities. Many of these same graduates report that CSTEP played a key role in helping to develop the confidence and skills necessary to navigate through their college years and into the profession of their dreams.

## **UB CSTEP offers the following programs and services for our students:**

### **PAID RESEARCH & INTERNSHIP OPPORTUNITIES**

Paid research and internships are an integral part of CSTEP - to introduce talented underrepresented students to the culture of research, provide insight related to their major and expose students to the rigors of graduate study. The CSTEP Research Internship Program exposes selected students to research and career opportunities in their major. CSTEP works with students to identify faculty research mentors or internship supervisors.

### **ACADEMIC YEAR RESEARCH/INTERNSHIP PROGRAM**

During the academic year, interns work for 12 weeks per semester under the guidance of a research mentor or internship supervisor. Students are assigned a research project for up to 10 hours per week, at the discretion of the research or internship supervisor. Students are awarded a research stipend from CSTEP during their research or internship experience.

### **SUMMER RESEARCH PROGRAM**

The CSTEP Summer Research Program is an intensive 8.5-week program designed to enhance the competitiveness of talented underrepresented students pursuing STEM and the allied health professions. The program strengthens participants' research skills and exposes them to the rigors of graduate study. Students are matched with faculty to conduct research for 30 hours per week. In addition to gaining research experience, students participate in a research methods course, seminars, and field trips. As a capstone, at the end of the program, students present their research to their peers, faculty and the University community during our Annual Research Symposium. The summer program takes place from the beginning of June through the end of July. Applications are due in March of each year.

### **TUTORING**

CSTEP students have access to the CPMC Academic Resource Center (ARC) which offers tutoring in courses identified as consistent challenges for students such as anatomy, biology, calculus, chemistry, pharmacology, physiology, physics, and engineering.

### **FUNDING OPPORTUNITIES FOR CONFERENCES**

CSTEP covers travel expenses for selected academic, career, and graduate school conferences and enrichment programs. These opportunities boost students' leadership skills, while building their resumes.

### **GRADUATE SCHOOL PREPARATION**

CSTEP awards scholarships to students for Kaplan Review Courses, which provide preparation for standardized graduate entrance exams, including the GRE, MCAT, LSAT, GMAT, and PCAT exams. Our staff also assists with personal statement preparation and review, and provides mock interviews for students applying to graduate/professional schools. CSTEP also offers a Graduate School Fee Waiver for current CSTEP students applying to graduate or professional school. More details can be found on our website: <http://cpmc.buffalo.edu/cstep/grad-school.php>.



## SERVICE LEARNING CLASS

A cohort of 25 students is selected to engage in a semester-long structured service learning project, becoming a Community Health Educator (CHE). The goal of CHE is to increase the number of individuals participating with the organ donor registry. This goal is achieved by engaging students pursuing allied health majors in service learning, and training them to conduct educational workshops for UB students, and facilitating a campus-wide organ donor registry drive. Our partner for the CHE Service Learning Project is Unyts (formerly Upstate New York Transplant Services).

## CSTEP SHADOW DAY

CSTEP students serve as mentors to high school students enrolled in the Science Technology Entry Program (STEP). As mentors, CSTEP students allow STEP students to “shadow” them by attending classes with them to get a glimpse of what college classes are like.

## CSTEP DAY OF SERVICE

CSTEP students visit local high schools in the Buffalo Public School System to share their collegiate experiences with students in their classrooms. This serves as a vehicle to give students from targeted high schools “college knowledge” while also introducing them to STEM fields and the licensed professions.

## HABITAT FOR HUMANITY/GRASSROOTS COMMUNITY GARDENS

CSTEP students team up with Habitat for Humanity Buffalo, a non-profit charitable organization seeking to alleviate the shortage of affordable housing both within the U.S. and abroad. Through volunteer labor and donations, Habitat for Humanity Buffalo has built and rehabilitated over 225 homes for families who have difficulty obtaining a home through other means.

## SUPPORT FROM THE CSTEP NETWORK OF STAFF, STUDENTS, AND ALUMNI

We offer academic, career, and personal counseling to assist students in overcoming difficulties, finding solutions, and establishing their priorities. The CSTEP Newsletter, website, and Student Recognition Dinner recognize the achievements of our students and help build the camaraderie that our students have come to rely on.

## MONTHLY EVENTS, WORKSHOPS, AND ENRICHMENT ACTIVITIES

Monthly meetings help build the community our students have come to rely upon. Students who attend our monthly meetings gain invaluable advice as they have the opportunity to learn from each other’s experiences and receive professional advice from alumni and guest speakers. Below is a list of several of this year’s workshops and enrichment activities:

CSTEP Welcome Back BBQ  
ABC’s of Graduate School  
CSTEP Shadow Day  
Maximize Your Potential  
Rx for Success Seminar (Pharmacy School)  
CSTEP’s Day of Service  
Effective Study Skills  
Time Management

Graduate School Panel  
Money Management  
Rx for Success Seminar (Medical School)  
Blueprint for Success  
Statewide Student Conference  
Student Recognition Dinner  
Student Research Luncheon  
Summer Research Program

## CSTEP CAREERS

Architect • Audiologist • Biologist • Dietitian • Certified Public Accountant • Chemist • Chiropractor • Computer Scientist • Dentist • Geologist • Engineer • Lawyer • Mathematician • Medical Doctor • Midwife • Nurse Practitioner • Occupational Therapist • Occupational Therapy Assistant • Optometrist • Pharmacist • Physical Therapist • Physicist • Podiatrist • Psychologist • Physician Assistant • Registered Nurse • Respiratory Therapist • Social Worker • Speech-Language Pathologist • Veterinarian

# MAKING A DIFFERENCE IN WNY: UB CSTEP HIGHLIGHTS

CSTEP addresses the shortages of underrepresented students both in the Science, Technology, Engineering, Mathematics (STEM) and the licensed professions. Resources available to CSTEP students include: paid research with faculty, internships, graduate school preparation, scholarships for standardized test preparation, academic and career advisement, tutorial services, monthly seminars, travel to professional conferences, and a support network to assist promising students in achieving their academic and professional goals.

During our previous grant cycle, CSTEP received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). This award, administered by the National Science Foundation, recognizes individuals and organizations that have demonstrated a commitment to mentoring students and increasing the participation of minorities and women in Science, Technology, Engineering, and Mathematics (STEM). Awardees serve as exemplars to their colleagues in the national effort to develop the nation's human resources in the STEM professions.

## Did You Know...?

- More than 90% of UB CSTEP students have entered into the CSTEP targeted professions or attended graduate school after obtaining their bachelor's degree.
- More than half of all CSTEP Students possess overall GPA's above 3.0.
- Our current enrollment is 380 students.
- Since the program's inception, UB CSTEP has awarded over 170 CSTEP/Kaplan scholarships to students in preparation for standardized graduate school exams (PCAT, MCAT, GMAT, LSAT, and GRE).
- This year, CSTEP and CURCA sponsored 15 students, staff, and alumni, including 3 students who presented their research at the 26th Annual CSTEP Statewide Conference: Journey's Beyond Excellence in Lake George, NY.
- This year, 30 CSTEP students were placed in funded research internships and completed over 7,000 hours.
- To help provide service to our students, CSTEP has hired a cadre of approximately 93 Graduate and Student Assistants to work within our office. This provides funding for the staff during their time as graduate and undergraduate students at UB.

# WHY DO RESEARCH? STUDENT PERSPECTIVES

Written by the 2018 Summer Research Cohort

Research exists in many forms. Whether it is a child turning over rocks to look for bugs, or a NASA scientist combing the night sky in search of extraterrestrial life, research and understanding are integral facets of human behavior. For many students, it is an essential part of the undergraduate experience. The Collegiate Science and Technology Entry Program (CSTEP) Summer Research Program is a comprehensive experience which aims to present students with an opportunity to learn from experts in their fields. For eight weeks, we worked closely under the guidance of a faculty mentor, while also receiving interpersonal enrichment and professional development. The program prepares students for the laboratory environment and serves as a catalyst for their future endeavors.

Students of the CSTEP Summer Research Program are engaging in research for a medley of reasons. Many of them see it as an invaluable learning experience. **Gerardo Barrera Giron**, an Environmental Engineering major, believes that “conducting research...exposes you to problems you hadn’t thought about before or problems that were out of your capability to solve.” He sees research as an avenue for students to learn valuable skills from professionals in academia. As a rising sophomore Computer Science major, **William Phillips** shares a similar view. Leon says, “Research is important to me because it allows me to impact others on a global scale.” Many students see research as a method of interacting with knowledgeable professionals in their future careers.

Through their experiences, students catch a glimpse of the day-to-day workings of experts in their fields. **Charitie Hill**, a senior Pharmacology and Toxicology major, says “Research provides an opportunity to discover and explore new ideas and improve on older ones.” **Jessica Maxwell** states “Research is important to me because I want to solve problem and create impactful solutions for future generations.” Ms. Maxwell is a Bronx, NY native studying biochemistry. Her research, under the guidance of Dr. Laura Feltri is “Investigating the codependence of Prohibitin 1 and Prohibitin 2 in Schwann Cells.”

**Elizabeth Quaye**, a Pharmacology & Toxicology student hailing from Yonkers, NY, views this opportunity as a bridge between university and career, stating: “By expanding the boundaries of our current knowledge, in an effort to help those who might not help themselves, researchers change the lives of many.” Elizabeth’s research investigates improving appropriate screening tools for microvascular complications of Type II diabetes mellitus in inner city primary care populations.

In addition to networking, many students see research as the precursor of innovation. “For me, research is important because I can use my knowledge to impact the world,” says **Edgar Claudio**, a junior majoring in Pharmacology and Toxicology with aspirations to become a forensic pathologist. **Kwaku Bonsu**, a senior Biology major, sees his research as a way to learn new ideas: “Research allows me to study and understand problems in the world in order to find solutions to make it a better place.” To **Steven Herrera**, “This research program has been worthwhile to me as I can use my experiences here to advance my academic and professional career. I would say that my research was helpful to the lab because it was a new solution to a problem they were facing.” Steven’s research is focused on the use of a synthetic carbosytril sensor and a synthetic fluorescein fluorophore to detect transition metals in biological processes. **Priya Persaud**, an Aerospace Engineering major, says of her research experience: “Research is important to me because I want to make a meaningful impact on society and increase representation in fields such as my very own!” Biomedical Sciences and Public Health dual major, **Temara Cross**, says in addition: “Firsthand experiences (such as conducting research) can aid in determining career goals.”

**Nailah Oronde** also hopes to leave her mark on history. Nailah is a junior studying Nursing, and this summer has been investigating the “Association between coping strategies and clinical outcomes in chronic pain patients.” Says Nailah, “To me, research can lead to many different interventions that would make our world a healthier and better place.” According to **Tanzania Bussey**, “Research is the foundation of constant progress and adaptation to our environment.” Tanzania is entering her third year as a student in the Department of Pharmacology and Toxicology. Electrical Engineering major and Brooklyn, NY native, **Nasihah Johnson** adds: “Research is important to me because it gives me a chance to build my technical and soft skills.”

Each student has their own reasons for conducting research. For some, it presents an opportunity to gain invaluable career experience. Others see it as a chance to gain recognition as innovators. Nonetheless, research is an integral part of the undergraduate experience. Through the enrichment of the CSTEP Summer Research program, our students learn the importance of research, gaining skills to use in education, the workforce, and beyond.

-2018 CSTEP Summer Research Cohort



## Gregory Adams, Jr.

**HOMETOWN:** Bronx, NY  
**MAJOR:** Psychology  
**INTERNSHIP PLACEMENT:** Behavioral Studies  
**SUMMER MENTOR:** Dr. Xiaozhong Wen, MD, PhD  
**SUMMER MENTOR TITLE:** Assistant Professor  
**DEPARTMENT:** Pediatrics

**SUMMER PROJECT:** *Maternal Smoking, Infant Secondhand Smoke Exposure, and Infant Behaviors by Breastfeeding*

**ABSTRACT:** Breastfeeding is very important for the health and emotional developmental of an infant. We wanted to look at the associations between maternal smokers and breastfed infants to see how an infant's sleeping patterns would be affected. During our study, we had our participants fill out postpartum surveys where we asked how often they breastfeed, their smoking status, and the quality of their child's sleep (sleep duration, time of day they sleep, how fast the baby falls asleep, and night wakings). It is expected that mothers who smoke and breastfeed will find that their child sleeps less and has poorer quality of sleep than mothers who do not smoke and breastfeed.

**ACADEMIC AND CAREER GOALS:** To obtain an MD degree to become an orthopedic surgeon.

**WORDS TO LIVE BY:** "The highest reward for men and women's devotion and dedication to excellence is not what one gets from it but what one he or she becomes through it." - Bill Britt



## Anna Kay Adamson

**HOMETOWN:** Brooklyn, NY  
**MAJOR:** Biological Sciences  
**INTERNSHIP PLACEMENT:** Roswell Park Comprehensive Cancer Center  
**SUMMER MENTOR:** Dr. Kirsten Moysich  
**SUMMER MENTOR TITLE:** Distinguished Professor  
**DEPARTMENT:** Cancer Prevention and Control

**SUMMER PROJECT:** *Investigating the Association Between Pre-treatment Peripheral Regulatory T Cells (Tregs) Levels and Survival after an Ovarian Cancer Diagnosis.*

**ABSTRACT:** Ovarian cancer is the fifth leading cause of cancer related death among women in the United States. Although there is evidence to suggest that survival after an epithelial ovarian cancer (EOC) diagnosis is inversely associated with Treg levels in EOC tumors, there are limited studies that definitively link elevated Treg levels in peripheral blood to shorter survival after an EOC diagnosis. In this lab, we used Cox proportional hazards models to estimate the association between Treg levels and progression-free and overall survival among EOC cases. This research will help further our understanding of the role of Tregs in EOC outcomes.

**ACADEMIC AND CAREER GOALS:** To obtain my Doctorate of Medicine and to become a gynecologic oncologist.

**WORDS TO LIVE BY:** "Persistence and determination alone are omnipotent." - Calvin Coolidge





## Abshiro Ali

**HOMETOWN:** Buffalo, NY  
**MAJOR:** UB Biological Department  
**INTERNSHIP PLACEMENT:** Biological Sciences  
**SUMMER MENTOR:** Dr. Shermali Gunawardena  
**SUMMER MENTOR TITLE:** Associate Professor  
**DEPARTMENT:** Biological Sciences

**SUMMER PROJECT:** *Investigating how Mitochondrial Fission and Fusion Proteins Affect the Subcellular Localization of alpha synuclein*

**ABSTRACT:** *Parkinson's disease (PD) is characterized by the formation of -syn-containing Lewy bodies and cell death. While -syn is present on mitochondria and defects are seen in PD, it is unknown how -syn contributes to mitochondrial health. Here we test the hypothesis that mitochondrial fusion/fission proteins affect the subcellular localization of -syn in neurons. To test this, we will evaluate the localization of a fluorescently tagged -syn in the context of increased levels of fission/fusion proteins in Drosophila larval nerves. This study will determine how -syn and mitochondrial health are connected normally and during PD pathology.*

**ACADEMIC AND CAREER GOALS:** To obtain my Doctorate of Dental Surgery and become a dentist.

**WORDS TO LIVE BY:** "Never allow waiting to become a habit. Live your dreams and take risks. Life is happening now."

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## Deborah Amponsah

**HOMETOWN:** Bronx, NY  
**MAJOR:** Philosophy  
**INTERNSHIP PLACEMENT:** Erie County Volunteer Lawyers Project  
**SUMMER MENTOR:** Mrs. Kerisha Hawthorne-Greer, Esq.  
**SUMMER MENTOR TITLE:** Research attorney  
**DEPARTMENT:** Erie County Volunteer Lawyers Project

**SUMMER PROJECT:** *Poverty in Buffalo: The large need and demand for Pro Bono services*

**ABSTRACT:** Buffalo, second largest city in New York, one of the poorest cities in America, with a median household income at \$33,119 compared to \$60,741 statewide. 31.2% of Buffalo's citizens live in poverty compared to 14.7% in poverty in New York City. These numbers help to illustrate why Pro Bono services and programs are in high demand. This study examines the prominent areas and sectors of Buffalo that contribute to this large percentage of poverty. This research investigates the different services and programs that already exist for this group of people, their effectiveness, and how they can continue to best serve the community.

**ACADEMIC AND CAREER GOALS:** To obtain a Juris Doctorate and Masters of Public health to practice health law and eventually a Global Health Advocate.

**WORDS TO LIVE BY:** "Speak for those who cannot speak for themselves and love your neighbor like yourself."



## Michael Banjoko

**HOMETOWN:** Queens, NY

**MAJOR:** Biomedical Engineering

**INTERNSHIP PLACEMENT:** Lovell Lab (Biomedical Engineering)

**SUMMER MENTOR:** Dr. Jonathan Lovell

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Biomedical Engineering

**SUMMER PROJECT:** *Anti-Tumor Activity of Cabazitaxel and The Processes Needed for The Delivery System*

**ABSTRACT:** Cabazitaxel is a third generation taxane with promising anti-tumor activity for treating hormone-refractory metastatic prostate cancer. Although it is more resistant in clinical trials, previous generations of the drug (Paclitaxel and Docetaxel) have significantly lower yield strength in comparison. The goal of this research is to find easier delivery methods so that enhanced permeability and retention effect (EPR) is possible. Methods used was freeze drying of the Cabazitaxel in a chemical solution to create nanoparticles. This research will further our understanding on how the new state of the drug can decrease the size of the tumor cell.

**ACADEMIC AND CAREER GOALS:** To obtain a Masters in Biomedical Engineering.

**WORDS TO LIVE BY:** "Euphoria should be your only belief."



## Gerardo Barrera Giron

**HOMETOWN:** Monticello, NY

**MAJOR:** Environmental Engineering

**INTERNSHIP PLACEMENT:** Jarvis Hall, Department of Environmental Engineering

**SUMMER MENTOR:** Dr. John D. Atkinson

**SUMMER MENTOR TITLE:** Assistant Professor

**DEPARTMENT:** Environmental Engineering

**SUMMER PROJECT:** *Physical, Chemical, and Adsorptive Properties of Plastic Microbeads and Microbead Replacements in Rinse-Off Cosmetics*

**ABSTRACT:** Microbeads were used as exfoliants in skin-care products. Their accumulation in the environment and ability to adsorb contaminants resulted in their banning in the United States. Cosmetic companies have switched to natural exfoliants, including carbon and nutshells, but the ability of these additives to concentrate contaminants is unknown. This is problematic because select materials are added to personal-care products as oil adsorbents. Our work determines the extent to which microbead alternatives adsorb contaminants. Soaps are purchased, additives are isolated, and adsorption properties are quantified and compared to existing options. This investigation develops an understanding of the impact of these alternatives.

**ACADEMIC AND CAREER GOALS:** To obtain a Masters Degree in Environmental Engineering.

**WORDS TO LIVE BY:** "Memento Vivere."



## Kwaku Bonsu

**HOMETOWN:** Bronx, NY

**MAJOR:** Biological Sciences

**INTERNSHIP PLACEMENT:** Jacobs School of Medicine and Biomedical Sciences

**SUMMER MENTOR:** Dr. Arindam Bhattacharjee

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Pharmacology and Toxicology

**SUMMER PROJECT:** *14-3-3 Regulatory Effects on Sequence Like A Calcium-activated K (Slack) Channels*

**ABSTRACT:** 14-3-3 proteins are regulatory proteins found in eukaryotes, involved in the regulation of various cellular processes such as signal transduction and protein trafficking. They mediate their effects by directly binding to other proteins, recruiting further proteins for interactions. In the Bhattacharjee laboratory, we are researching the trafficking of Slack channels to understand how it impacts the excitability of neurons and pain behavior. In my project, I will be co-expressing Slack channels and various 14-3-3 isoforms in heterologous expression systems and through electrophysiology analysis, examine the effects on Slack currents. This research will further our understanding on how pain signaling works and how to create drugs for specific pain targets.

**ACADEMIC AND CAREER GOALS:** To obtain my MA in Biological Sciences and then attend medical school to eventually become a plastic surgeon.

**WORDS TO LIVE BY:** "Don't count the days, make the days count." - Muhammad Ali



## Tanzania Bussey

**HOMETOWN:** Staten Island, NY

**MAJOR:** Pharmacology and Toxicology

**INTERNSHIP PLACEMENT:** Center of excellence Bioinformatics and Life Sciences

**SUMMER MENTOR:** Dr. Qing Ma and Dr. Gene D. Morse

**SUMMER MENTOR TITLE:** Assistant Professor

**DEPARTMENT:** Center for Integrated Global Biomedical Sciences

**SUMMER PROJECT:** *Practical Approaches for evaluating adherence to PrEP for HIV: Pharmacological Methods*

**ABSTRACT:** Pre-exposure prophylaxis (PrEP) has been recommended by the United States Center for Disease Control for Human Immunodeficiency Virus prevention. PrEP should be taken on a daily basis in order to reach optimal drug concentrations in the body required to effectively protect against the virus. Thus, patient adherence to PrEP is crucial. This study will review various practical approaches to monitor adherence to PrEP with a focus on pharmacological methods including pharmacokinetic modeling and dry-blood-spot analysis. The overarching goal of this research is to increase public awareness of PrEP and the importance of PrEP adherence.

**ACADEMIC AND CAREER GOALS:** I would like to obtain an MD/PhD to become a physician scientist. My overarching goal is to work on developing new medications and technologies to treat diseases as well as to combat health status disparities.

**WORDS TO LIVE BY:** "The process leads to your promise."



## Edgar Claudio

**HOMETOWN:** Staten Island, NY

**MAJOR:** Pharmacology and Toxicology

**INTERNSHIP PLACEMENT:** Center of Excellence in Bioinformatics and Life Sciences

**SUMMER MENTOR:** Dr. Gene D. Morse

**SUMMER MENTOR TITLE:** SUNY Distinguished Professor

**DEPARTMENT:** Pharmacy Practice

**SUMMER PROJECT:** *Investigating How Effective Broadly Neutralizing Antibodies Can Suppress HIV*

**ABSTRACT:** The Human Immunodeficiency Virus (HIV) is a smart virus. The virus replicates itself using human t-cells

which creates new strains of HIV. The different strains make it hard for human antibodies to identify and attack the virus. Broadly Neutralizing Monoclonal Antibodies (BNABs) can attack different strains of HIV. We will analyze data from ongoing clinical studies to demonstrate how the BNABs can be used in different patient populations to neutralize HIV by summarizing the progress of these trials. This research will illustrate the current development of effective approaches to suppress and eradicate HIV without the use of antiretroviral medications.

**ACADEMIC AND CAREER GOALS:** To obtain a Doctorate of Pharmacy and to become a Clinical Pharmacist.

**WORDS TO LIVE BY:** "Aim to be the best at whatever you choose to do in your life."



## Temara Cross

**HOMETOWN:** Buffalo, NY

**MAJOR:** Biomedical Sciences & Public Health

**INTERNSHIP PLACEMENT:** Roswell Park Comprehensive Cancer Center

**SUMMER MENTOR:** Dr. Christina B. Ambrosone

**SUMMER MENTOR TITLE:** Professor of Oncology; Health Research, Inc. (HRI) Scientist

**DEPARTMENT:** Cancer Control and Prevention

**SUMMER PROJECT:** *Breast Cancer in African-American Women: Identifying Estrogen Receptor Negativity Thresholds and Risk Factors*

**ABSTRACT:** Breast cancer in African-American women is more likely to be estrogen receptor negative (ER-), having more severe outcomes. ER negativity was traditionally classified as <10% of cells staining positive, but was then changed to <1%. Changing this classification cutoff may affect the association of ER status with risk factors. Here, we used patient data from the Women's Circle of Health Study to evaluate ER status thresholds and how they influence associations with risk factors. This research will help refine classification of tumors by ER status for the purposes of research to understand risk factors associated with ER negativity.

**ACADEMIC AND CAREER GOALS:** To obtain my Doctorate of Medicine and Master of Business Administration (MD/MBA), become a family physician, then open my own practice in the City of Buffalo.

**WORDS TO LIVE BY:** "Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge Him, and He shall direct thy paths." - Proverbs 3:5-6





## Chimaobi Ezeilo

**HOMETOWN:** Haverstraw, NY

**MAJOR:** Computer Science

**INTERNSHIP PLACEMENT:** VLSI Lab

**SUMMER MENTOR:** Dr. Ramalingam Sridhar

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Computer Science and Engineering

**SUMMER PROJECT:** *Network Driven Energy Analysis of Mobile Devices*

**ABSTRACT:** As mobile technology evolves, we strive towards exceptional processor performance, enhanced network capabilities, and improved battery lives. Towards this end, we study mobile device power dynamics under various TCP/IP networking events. Prior work, such as Scepter[1], looked at dynamically managing the state of the network interface. However, their focus did not include a rigorous investigation of the TCP/IP packet queuing system. We show this queuing system to have significance regarding the activation of the mobile's device wireless transceiver. We investigate energy loss from this transceiver under adversarial packet queuing. We illustrate the approach with a set of network simulations. We then craft and send packet sequences to a Samsung Galaxy S5 and record its power consumption during the interaction. This research provides new insights and exciting challenges for low power mobile device design.

**ACADEMIC AND CAREER GOALS:** To obtain a PhD in computer science and become an Artificial Intelligence researcher.

**WORDS TO LIVE BY:** "Quality is not an act, it's a habit."



## Jhanna Flora

**HOMETOWN:** Amherst, NY

**MAJOR:** Biological Sciences

**INTERNSHIP PLACEMENT:** Department of Biological Sciences

**SUMMER MENTOR:** Dr. Kathryn Medler

**SUMMER MENTOR TITLE:** Associate Professor and Interim Chair

**DEPARTMENT:** Biological Sciences

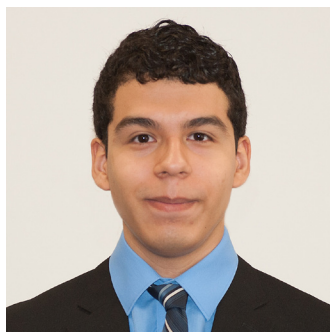
**SUMMER PROJECT:** *Evaluating the Effects of Cyclophosphamide and Doxorubicin on Taste Cells*

**ABSTRACT:** Impaired taste is a common side effect of chemotherapy which causes reduced appetite and weight loss. Many chemotherapeutic drugs disrupt the taste system by killing the taste receptor cells in the tongue.

Currently, how these drugs affect taste signaling is unknown. In this study, we used immunohistochemistry to analyze the effects of two chemotherapy drugs, Cyclophosphamide (CYP) and Doxorubicin (Dox) on two important signaling proteins in taste cells – gustducin and phospholipase CB2 (PLCB2). This research provides new insights on how chemotherapy drugs impact taste and may identify new approaches to reduce its detrimental side effects on cancer patients.

**ACADEMIC AND CAREER GOALS:** I want to obtain my Bachelor's degree in Biological Sciences and to pursue a career in forensic science or a creative career that combines art and science.

**WORDS TO LIVE BY:** "Another Day, Another Mind-Boggling Adventure!" – Calvin & Hobbes' Spaceman Spiff



## Steven Herrera

**HOMETOWN:** Woodside, NY

**MAJOR:** Mechanical Engineering

**INTERNSHIP PLACEMENT:** Sound and Vibrations Lab

**SUMMER MENTOR:** Dr. Mostafa Nouh

**SUMMER MENTOR TITLE:** Assistant Professor

**DEPARTMENT:** Mechanical and Aerospace Engineering

**SUMMER PROJECT:** *Design and Construction of a Thermoacoustic Refrigerator*

**ABSTRACT:** Thermoacoustic refrigerators are inexpensive, lightweight systems that incorporate no moving parts, and thus provide an alternative to vapor compression refrigeration systems. Since they can utilize atmospheric air, thermoacoustic refrigerators avert the environmental consequences of conventional refrigerants such as ozone depletion<sup>1</sup>. This work entails the design and construction of a thermoacoustic refrigeration system that is powered using a heat exchanger and an inductor circuit. The thermal input (heat) is then converted to a high-amplitude acoustic waves (sound) which provides the cooling effect in the refrigerator. Our research focuses on the feasibility and operating range of such a system in a simplified setting.

**ACADEMIC AND CAREER GOALS:** To establish a life-long career in the engineering field.

**WORDS TO LIVE BY:** "Only you can change your life. No one can do it for you."



## Charitie Hill

**HOMETOWN:** Rochester, NY

**MAJOR:** Chemistry and Biological Sciences

**INTERNSHIP PLACEMENT:** Institute of Laser Photonics and Biophotonics and Anesthesiology

**SUMMER MENTOR:** Dr. Hilliard Kutscher

**SUMMER MENTOR TITLE:** Postdoctoral Associate; Research Assistant Professor

**DEPARTMENT:** Institute of Laser Photonics and Biophotonics and Anesthesiology

**SUMMER PROJECT:** *Development and Characterization of Volatile Anesthetic Loaded Nanoparticles for Influenza Treatment*

**ABSTRACT:** Influenza viruses cause 40,000 - 200,000 hospitalizations during the flu season. Exposure to influenza predisposes the patient to more severe pneumococcal infections. Volatile anesthetic agents, such as isoflurane can tremendously affect the immune system. We hypothesize that Intralipid nanoparticles loaded with isoflurane can aid in those infected with the influenza virus. Through the use of FTIR spectroscopy and DLS (Dynamic Light Scattering), we will determine the size, zeta potential, and potentially determine the amount of isoflurane present within a solution. This research will further our understanding of the use of volatile anesthetics loaded nanoparticles in the body.

**ACADEMIC AND CAREER GOALS:** To obtain a Doctorate of Pharmacy and Masters in Public Health and to become a Clinical Pharmacist.

**WORDS TO LIVE BY:** "You are what you do, not what you say you'll do."



## Nasiah Johnson

**HOMETOWN:** Brooklyn, NY

**MAJOR:** Electrical Engineering

**INTERNSHIP PLACEMENT:** UB Multimedia Communications & Systems Lab

**SUMMER MENTOR:** Dr. Nicholas Mastronarde

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Electrical Engineering

**SUMMER PROJECT:** *Low Power Wide Area Network Radios For Drone Air Traffic Control*

**ABSTRACT:** Recent advances in embedded computing, wireless communication, flight control algorithms, and miniaturized sensing have enabled the growth of unmanned aerial vehicles (UAVs). UAVs promise breakthroughs in

hobby, public safety, commercial, and military applications including aerial photography, search-and-rescue, infrastructure inspection, package delivery, and surveillance. However, despite these technological advances, it is still an open question how to safely integrate UAVs into the (low-altitude) national air space. This study investigates the use of emerging low-power wide-area network (LPWAN) radios mounted on UAVs as a low-cost approach to facilitate their integration into the national air space.

**ACADEMIC AND CAREER GOALS:** To obtain a Master's degree in Electrical Engineering.

**WORDS TO LIVE BY:** "Don't let small minds convince you that your dreams are too big."



## Brianna Kinley

**HOMETOWN:** Buffalo, NY

**MAJOR:** Psychology

**INTERNSHIP PLACEMENT:** UB Behavioral Neuroendocrinology Lab

**SUMMER MENTOR:** Dr. Matthew Paul

**SUMMER MENTOR TITLE:** Assistant Professor

**DEPARTMENT:** Psychology

**SUMMER PROJECT:** *The Effect of Adolescent Social Isolation on the Brain*

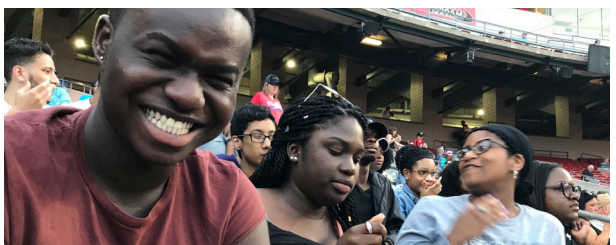
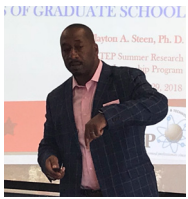
**ABSTRACT:** Adolescence is a critical time for the development of reproductive, motivational, and social behavior. It is also a time of increased vulnerability to stress and the onset of several mental health disorders. Kisspeptin is

a protein in the brain that increases during adolescence and triggers puberty. In addition, kisspeptin cells in the medial amygdala (MeA) may influence motivation and social behaviors. Using immunocytochemistry, we tested whether social isolation stress during adolescence alters the development of MeA kisspeptin cells in male and female rats. This research will help us understand how stress impacts the development of neural circuits during adolescence.

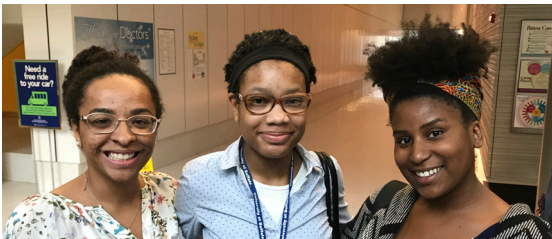
**ACADEMIC AND CAREER GOALS:** To attend medical school and become a physician.

**WORDS TO LIVE BY:** "You learn more from failure than from success, don't let it stop you. Failure builds character."













## Jessica Maxwell

**HOMETOWN:** Bronx, NY

**MAJOR:** Biochemistry

**INTERNSHIP PLACEMENT:** Hunter James Kelly Research Institute

**SUMMER MENTOR:** Dr. Laura Feltri

**SUMMER MENTOR TITLE:** Professor of Biochemistry and Neurology

**DEPARTMENT:** Biochemistry

**SUMMER PROJECT:** *Investigating the codependence of Prohibitin 1 and Prohibitin 2 in Schwann Cells*

**ABSTRACT:** Schwann cells are glial cells that coat the nerve to create myelin sheaths for axon within the peripheral nervous system. Prohibitin-1 and -2 are important proteins for cells to maintain homeostasis. Prohibitin-1 and -2 are important for myelination in Schwann cells. Deletion of Prohibitin-1 in mouse's Schwann cells impairs the maintenance of myelin and deletion of Prohibitin-2 impairs the formation of myelin. We are investigating the different roles and combinations of Prohibitin-1 and -2 in myelination using in vivo and in vitro systems. This research will further our understanding of the roles of Prohibitin-1 and -2 in Schwann cells.

**ACADEMIC AND CAREER GOALS:** To obtain an MD and become a pediatrician.

**WORDS TO LIVE BY:** "Let Go and Let God take control of your life."



## Shelbi Molin

**HOMETOWN:** Brooklyn, NY

**MAJOR:** Political Science

**INTERNSHIP PLACEMENT:** Erie County Volunteer Lawyers Project

**SUMMER MENTOR:** Mrs. Kerisha Hawthorne-Greer, Esq.

**SUMMER MENTOR TITLE:** Staff Attorney

**DEPARTMENT:** Law

**SUMMER PROJECT:** *Housing in Buffalo: How income affects eviction rates in and around Buffalo*

**ABSTRACT:** An eviction happens when a landlord expels a tenant from property he or she owns. In most American cities and towns, landlords can evict renters even if they have not missed a rent payment or otherwise violated their lease agreement; these are called "no fault" evictions<sup>1</sup>. In this research, we intend to identify the areas in Erie County that's in need of pro bono, legal representation by examining the correlations between income and eviction data from 2010 to present. This research will better help clinics who have programs to help underrepresented people facing evictions such as Volunteer Lawyer Project and Neighborhood Legal Service.

**ACADEMIC AND CAREER GOALS:** To obtain a Juris Doctor and become a judge.

**WORDS TO LIVE BY:** "If you want to go somewhere, it is best to find someone who has already been there." - Robert Kiyosaki



## Keiona Nance

**HOMETOWN:** Jamestown, NY

**MAJOR:** Exercise Science

**INTERNSHIP PLACEMENT:** Exercise and Nutrition Sciences

**SUMMER MENTOR:** Dr. Zachary J. Schrader

**SUMMER MENTOR TITLE:** Assistant Professor

**DEPARTMENT:** Exercise and Nutrition Sciences

**SUMMER PROJECT:** *Impact of Thermal Behavior on Thermal Comfort during Exercise*

**ABSTRACT:** Thermal behavior helps to mitigate thermal discomfort during rest. However, it is unknown whether using thermal behavior during exercise reduces body temperatures and improves thermal discomfort. We hypothesized that using thermal behavior will result in an attenuated core temperature response, and will improve thermal discomfort during exercise. Subjects completed a 60 min cycling trial in a controlled or experimental condition allowing them to receive cooling when they perceived their upper body to be thermally uncomfortable. We anticipate this research will help further our understanding of using thermal behavior during exercise to mitigate increases in body temperatures and thermal discomfort.

**ACADEMIC AND CAREER GOALS:** To become a Physical Therapist.

**WORDS TO LIVE BY:** "Everyday may not be good but there is something good in everyday."



## Nailah Oronde

**HOMETOWN:** Poughkeepsie, NY

**MAJOR:** Public Health and Nursing

**INTERNSHIP PLACEMENT:** Wende Hall

**SUMMER MENTOR:** Dr. Yu-Ping Chang

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Nursing

**SUMMER PROJECT:** *Factors Associated with Fatigue in Family Caregivers of People with Dementia*

**ABSTRACT:** Approximately 46.8 million people are affected by dementia worldwide and 83% of the care provided to them in the United States comes from family members, friends or other unpaid caregivers. Caring for an individual with dementia can be overwhelming and challenging. Research has shown that caregivers have suffered from depression, burden and sleep deprivation. However, little is known about caregiver's fatigue. This study uses a cross-sectional design and 112 family caregivers participated in the study. Depression, sleep, and care-recipients' functionalities were significantly correlated with caregivers' fatigue. Our study findings provide important information for future development of intervention to reduce caregiver's fatigue.

**ACADEMIC AND CAREER GOALS:** I will get my DNP and become a traveling Nurse Practitioner.

**WORDS TO LIVE BY:** "If Plan A didn't work, the alphabet has 25 more letters! Stay Calm."



## Priya Persaud

**HOMETOWN:** Queens, NY

**MAJOR:** Aerospace Engineering

**INTERNSHIP PLACEMENT:** University at Buffalo Nanosatellite Laboratory

**SUMMER MENTOR:** Dr. John Crassidis

**SUMMER MENTOR TITLE:** Professor

**DEPARTMENT:** Mechanical and Aerospace Engineering

**SUMMER PROJECT:** *Development of a Cost Effective GPS Tracker Using Audio Frequency Shift Keying and Automatic Packet Reporting System*

**ABSTRACT:** The Automatic Packet Reporting System is a radio based system for transmitting data on a shared frequency for widespread detection and is used in many off-the-shelf GPS trackers. However, these trackers can be expensive and bulky, making them less viable for smaller projects. We will instead use a compact radio module and micro-controller to develop a tracker that uses audio frequency shift keying to generate digital data that can be transmitted as packets using the AX.25 protocol. This will allow for a compact module that can report its location reliably, for a significantly lower price and size.

**ACADEMIC AND CAREER GOALS:** To obtain a Masters degree in Aerospace Engineering.

**WORDS TO LIVE BY:** "The probability of success is difficult to estimate; but if we never search the chance of success is zero." – Phillip Morrison



## William Phillips

**HOMETOWN:** Mount Vernon, NY

**MAJOR:** Computer Science

**INTERNSHIP PLACEMENT:** The Center for Socially Relevant Computing

**SUMMER MENTOR:** Dr. Kris Schindler

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Computer Science and Engineering

**SUMMER PROJECT:** *Adaptive Technology at a Glance: Eye Tracking Brain Computing Interface for Augmentative Communication*

**ABSTRACT:** Amyotrophic Lateral Sclerosis (ALS) is a progressive disease that affects all voluntary muscles that disables one's ability to: move, communicate, and breathe. Similarly, stroke patients develop speech and language problems over time. We are working to provide augmentative and alternative communication (AAC) devices tailored to such individuals. Our ALS and stroke patients have benefited from our eyegaze system that tracks their eyes as they stare at a screen that displays on-screen buttons that assist with communicating and controlling external devices. With a Brain-Computer Interface (BCI) device, we're doing research to distinguish brain-wave patterns that will recognize single letters or words to perform text-to-speech.

**ACADEMIC AND CAREER GOALS:** To obtain a Masters Degree in Computer Science and start my own technology company.

**WORDS TO LIVE BY:** "The future belongs to those who prepare for it today." – Malcolm X





## Elizabeth Quaye

**HOMETOWN:** Yonkers, NY

**MAJOR:** Pharmacology & Toxicology

**INTERNSHIP PLACEMENT:** Hertel-Elmwood Internal Medicine Center

**SUMMER MENTOR:** Dr. Roberto O. Diaz del Carpio

**SUMMER MENTOR TITLE:** Clinical Assistant Professor

**DEPARTMENT:** Medicine

**SUMMER PROJECT:** *Improving Appropriate Screening Tools for Microvascular Complications of Type II Diabetes Mellitus in an Inner City Primary Care Population*

**ABSTRACT:** As of 2015, diabetes remains the seventh leading cause of death in America. Approximately 29 million Americans are currently affected by the disease, and millions more are at high risk of developing the disease in the next decade. Effective disease management is key to controlling the disease and reducing microvascular complications such as nephropathy and retinopathy. This study employs the electronic medical record, clinician interviews, and remodeling of protocols. The current quality improvement study aims to design medical intervention procedures to enhance the ability of the primary care clinician to appropriately manage screening guidelines at the Hertel-Elmwood Internal Medicine Center.

**ACADEMIC AND CAREER GOALS:** To become a physician scientist who does research that translates to the bedside in the form of clinical trials.

**WORDS TO LIVE BY:** "We may encounter many defeats but we must not be defeated." – Maya Angelou

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## Aliaya Keyana Williams

**HOMETOWN:** Oneonta, NY

**MAJOR:** Biological Sciences

**INTERNSHIP PLACEMENT:** Nutrition and Health Research Lab

**SUMMER MENTOR:** Dr. Jennifer Temple

**SUMMER MENTOR TITLE:** Associate Professor

**DEPARTMENT:** Exercise and Nutrition Sciences

**SUMMER PROJECT:** *Measuring the Future in Under a Minute: The Validation of a Shortened Delay Discounting Task in Adolescence*

**ABSTRACT:** Children from low income backgrounds are at risk for obesity in adulthood. One predictor for obesity is Delay Discounting (DD). A part of our study is to validate the minute-task using the adjusting-amount task. We are comparing the k-values from the baseline and follow-up. To validate the minute-task there should be similarity between the k-values from both tasks. There was a small correlation between the tasks at baseline ( $r(98) = .27$   $p = .007$ ), and no correlation at follow-up. Although the minute-task and adjusting amount task are related at baseline, there is not yet enough evidence to validate the minute-task in adolescents.

**ACADEMIC AND CAREER GOALS:** To obtain my MD and to become a pediatrician.

**WORDS TO LIVE BY:** "Excellence is never an accident; it is the result of high intention, sincere effort, intelligent direction, skillful execution and the vision to see obstacles as opportunities."

# The 2018 CSTEP Summer Research Program expresses thanks & appreciation to the following workshop & tour facilitators for their contributions & support:

## **EKUA AIDOO**

EQUITY AND INCLUSION OFFICER,  
EVERGREEN HEALTH

## **DR. BILL BAUER**

DIRECTOR, HAUPTMAN-WOODWARD  
INSTITUTE (HWI)

## **DAVID BERTUCA**

MAP LIBRARIAN,  
SCIENCE AND ENGINEERING LIBRARY

## **DR. KATE BEZRUKOVA**

ASSOCIATE PROFESSOR,  
ORGANIZATION AND HUMAN RESOURCES,  
SCHOOL OF MANAGEMENT

## **DR. PIERO BIANCO**

ASSOCIATE PROFESSOR,  
MICROBIOLOGY AND IMMUNOLOGY

## **HADAR BORDEN**

DIRECTOR, BLACKSTONE LAUNCHPAD

## **ED BRODKA**

CAREER COUNSELOR, UB CAREER SERVICES

## **TERRI BUDEK**

ASSOCIATE DIRECTOR,  
INTERCULTURAL AND DIVERSITY CENTER

## **DAVID J. BERTUCA**

MAP LIBRARIAN,  
LOCKWOOD MEMORIAL LIBRARY

## **DR. KEVIN BURKE**

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UNDERGRADUATE EDUCATION,  
ELECTRICAL ENGINEERING

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DIRECTOR, FELLOWSHIPS & SCHOLARSHIPS,  
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STUDENT ACTIVITIES ASSOCIATE  
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STUDENT ENGAGEMENT

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EDUCATIONAL LEADERSHIP AND POLICY

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INTERNATIONAL BUSINESS MANAGER,  
ECOLOGY AND ENVIRONMENT, INC.

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PROFESSOR, DEPARTMENT OF  
COMMUNICATION

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ATA PRACTITIONER, SCHOOL OF ENGINEER-  
ING AND APPLIED SCIENCE

## **PROF. ELAINE HAMMOND**

SCHOOLS OF SOCIAL WORK & LAW

## **DOMINIQUE HICKSON**

PHD CANDIDATE, COMPUTER SCIENCE,  
CSTEP ALUM

## **DR. JAMES JENSEN**

PROFESSOR, DIRECTOR OF UNDERGRADUATE  
STUDIES - ENVIRONMENTAL ENGINEERING

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DIRECTOR, OFFICE OF  
RESEARCH COMPLIANCE

## **DR. ADAM KISAILUS**

ASSISTANT DEAN, DIVISION OF EDUCATIONAL  
AFFAIRS, ROSWELL PARK CANCER INSTITUTE

## **DAWN LONGUIL**

GRADUATE PROGRAMS MANAGER (WNY),  
KAPLAN

## **DR. AMY MARSCHLOK**

RESEARCH ASSOCIATE PROFESSOR,  
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## **ALLISON McCARTHY**

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OFFICE OF STUDENT ENGAGEMENT

## **TOM MURDOCK**

MANAGER, UB INCUBATOR NETWORK

## **DR. CELESTE OWENS**

CLINICAL PSYCHOLOGIST, AUTHOR

## **WAYNE PORTERFIELD**

ASSISTANT DIRECTOR, CAREER SERVICES

## **ERIN ROWLEY**

ENGINEERING LIBRARIAN,  
SCIENCE AND ENGINEERING LIBRARY

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MANAGER, UNIVERSITY FACILITIES  
ENVIRONMENT, HEALTH & SAFETY SERVICES

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EXECUTIVE DIRECTOR OF SOCIAL  
INNOVATION DEPARTMENT,  
MGT DEAN'S OFFICE ADMINISTRATION

## **DR. CLAYTON STEEN**

VICE PRESIDENT FOR ENROLLMENT  
MANAGEMENT, SUNY EMPIRE STATE COLLEGE

## **DR. ANDREW STOTT**

VICE PROVOST AND  
DEAN OF UNDERGRADUATE EDUCATION

## **DR. CHRISTINE TINNESZ**

ASSOCIATE DIRECTOR, METHODS OF INQUIRY

## **TIMOTHY TRYJANKOWSKI**

DIRECTOR, CENTER FOR UNDERGRADUATE  
RESEARCH & CREATIVE ACTIVITIES

## **JIM ULRICH**

PHOTOGRAPHER

## **OLIVIA WEST**

MONEY MANAGEMENT,  
WEST ADVISORY GROUP

## **CHRISTINE WINGO**

PAST CSTEP AB PRESIDENT

## **LINDA ZILGME**

DIRECTOR, ACADEMIC RESOURCE CENTER

# THANK YOU to our 2018 CSTEP Summer Symposium Judges!

## NAME

## DEPARTMENT

DR. JESSY ALEXANDER	Dept. of Medicine, Jacobs School of Medicine & Biomedical Sciences
DR. CHELSIE ARMBRUSTER	Dept. of Microbiology and Immunology
DR. BOGDAN BEIROWSKI	Dept. of Biochemistry
DR. JAMES BERRY	Dept. of Biological Sciences
DR. MARY BISSON	Dept. of Biological Sciences
DR. KARTHIK DANTU	Dept. of Computer Science and Engineering
DR. MICHAEL DWYER, III	Dept. of Neurology
DR. DONNA FABRY	School of Nursing
MR. PABLO FALCA	Business Executive
DR. MINGCHEN GAO	Dept. of Computer Science and Engineering
MR. BILL GRUNERT	Dept. of Industrial and Systems Engineering (Lecturer Emeritus)
DR. JOHANNES HACHMANN	Dept. of Chemical and Biological Engineering
DR. BLAIR JOHNSON	Dept. of Exercise & Nutrition
DR. RAY KELLEHER	Dept. of Microbiology and Immunology
DR. JOBAIDUR KHAN	Dept. of Mechanical Engineering
DR. SUPRIYA MAHAJAN	Dept. of Medicine, Jacobs School of Medicine & Biomedical Sciences
DR. CATHERINE MANN	School of Nursing
DR. ARDESHIR MASHHADI	Dept. of Mechanical Engineering
DR. ROGER MAYNE	Dept. of Mechanical Engineering (Distinguished Teaching Professor Emeritus)
DR. KAMELIA MONFARED	Dept. of Civil, Structural, and Environmental Engineering
DR. BERNARD ONYENUCHEYA	Dept. of Electrical Engineering
DR. HEATHER OROM	Dept. of Community Health and Health Behavior, School of Public Health & Health Professions
DR. ATRI RUDRA	Dept. of Computer Science & Engineering
MRS.. EUSTOLIA SANTANA	School of Nursing
DR. JONGMIN SHIM	Dept. of Civil, Structural & Environmental Engineering
DR. LINDA STEEG	School of Nursing
DR. SARAH WALKER	Dept. of Biological Sciences

# WHERE ARE THEY NOW?

## An Update On Previous CSTEP Summer Research Interns

First Name	Last Name	Summer Research Program Year	UB Major(s)	Where are they now?	What's their title?
Breanna	Acheampong	2007	Electrical Engineering	City of Monroe (North Carolina)	Engineer
Frank	Acheampong	2007	Pharmacy	UMass Memorial Medical Center	Clinical Pharmacist - Informatics
Geraldene	Agbasionwe	2007	Pre-Pharmacy	Live Good Pharmacy INC	Supervising Pharmacist
Ernestine	Brown	2007	Nursing	University of Rochester Medical Center	Nurse Practitioner
Dr. Corie	Ellison	2007	Pharmacology & Toxicology	Procter & Gamble	Toxicologist
Moses	Farley	2007		PPL Corporation	Engineer
Mark	Glasgow	2007	Biotechnology	Univera Healthcare	Business Process Intelligence Analyst
Dr. Richard	Linares	2007		Completed doctoral studies at SUNY at Buffalo in Mechanical and Aerospace Engineering	Aerospace Engineering
David	Louis	2007	Psychology	Canarsie Recovery Coalition	Project Director
Shiny	Thomas	2007	Pharmacy	CVS Pharmacy; Touro College	PharmD
Kevin	Bryant	2008	Electrical Engineering	Bechtel Plant Machinery, Inc	Electrical Engineering Project Manager
Toni-Shay	Chandon	2008	Pharmacy		PharmD
Daivon	Garrick	2008	Pharmacology & Toxicology	M&T Bank	Credit Risk Analyst
Marda	Hailu	2008	Biological Sciences	Western New England University College of Pharmacy	
Jessica	Isaac	2008	Biomedical Sciences		PharmD
Aggrey	Jacobs	2008		UB school of engineering	Doctoral Student
Anthony	Jones	2008	Biomedical Sciences	UB Jacobs School of Medicine and Biomedical Science	Doctoral Student
Micah	McCurty	2008	Exercise Science		DPT
Hieu	Nguyen	2008	Biochemistry	UB Dental School	Dental Student
Wilberforce	Osei	2008	Chemistry/ Pharmacology		PharmD
Francis	Perez	2008	Chemical & Biological Engineering	Completed MS in Chemical Engineering from SUNY at Buffalo	Chemical Engineer
Souleymane	Sow	2008	Aerospace Engineering	Completed MS in Aerospace Engineering from Purdue University	Aerospace Engineer

Franklin	Yeboah	2008	Medical Technology	Massachusetts College of Pharmacy and Health Sciences	PharmD
Hans	Boateng	2009	Biomedical Sciences	Riverside Health System	PharmD
Corinna	Joseph	2009		Bechtel Marine Propulsion Corporation (Bechtel Plant Machinery Inc.)	Engineer
Jean	Mandat	2009		New York College of Osteopathic Medicine	Medical Doctor
Jasmine	May	2009		Northwestern University	Medical Student
Christopher	Williams	2009		Lam Research Corp./ IBM Corp.	Field Service Engineer II, (FSE)
Bruck	Adam	2010	Mathematics	IPRO, NYS Department of Health, Office of Quality and Patient Safety, Bureau of Health Informatics	Data Analyst
Priscilla	Adjei-Baffour	2010		Marshall University School of Pharmacy	PharmD
Chiamaka	Agbasionwe	2010		Biological Department	PharmD
Derek	Brim	2010	Engineering		Engineer/Professional Football Player
Joseph	Diehl	2010	Civil Engineering	Department of Civil, Structural, and Environmental Engineering, SUNY at Buffalo	Engineer
Ian	Duncan	2010	Mechanical Engineering	Suspension & Steering Dynamics at Honda R&D	Engineer
Christina	Garcia	2010	Biomedical Sciences	Ross University	Medical Student
Ron	Heichman	2010		University at Buffalo	Mechanical & Aerospace Engineering PhD Student
Thao	Nguyen	2010		University of Rochester	Engineer with Panasonic
Adonis	Pimienta-Penalver	2010		Aerospace Engineering	Doctoral Student
Antonio	Upia	2010	Completed MS Engineering	Mass Electric Construction Co.	Electrical Field Engineer
Keelan	Chu For	2011	Mechanical and Aerospace Engineering	University at Buffalo	Engineer with Moog
Hector	Coco	2011		City of Buffalo Police Dept., JetBlue	Police Officer, Engineer
Belle	Cunningham	2011		Pepsi	Project Supervisor
Jonathan	Feliciano	2011	Psychology	NBC Universal, Inc.	Research Analyst
Tavia	Garvey	2011		Wegman Food Market	PharmD
Paul	Glenn	2011			Doctoral Student



Isabel	Gonzalez	2011	Civil Engineering	Completed MS Engineering	Civil Engineer
Richard	Hunte	2011		University of Florida	Doctoral Student
Jordan	Jorgensen	2011		Global Foundries	Advanced Manufacturing Engineer
Gael	Lamothe	2011		Hunter Roberts Construction Group	Assistant Project Manager
Millicent	Nwankwo	2011		Shire Pharmaceuticals	R&D Global Health Economic, Outcomes Research, Epidemiology
Damian	Ogbonna	2011		Computer Science and Engineering	Graduate Student - University of Buffalo
Gino	An	2012	Biological Sciences	UB Dental School	Dental Student
Barinaepkee	Banuna	2012	Pre-Med/Biomedical Sciences	Hofstra Medical School	Medical Student
Sharece	Blake	2012		Roswell Park Comprehensive Cancer Center	Research Associate
Nuris	De La Cruz	2012	Completed MS program	Columbia Presbyterian	Psychological Counseling
Keith	Dolcy	2012	Pre-Pharmacy	University at Buffalo School of Pharmacy	PharmD
Brandon	Durant	2012		University at Buffalo	Graduate Student
Ashley	Narain	2012		University of Bridgeport College of Chiropractic	Doctor of Chiropractic
Khalif	Osson	2012		University at Buffalo School of Pharmacy	Pharmacy Student
Frank	Segui	2012		Western Michigan University	Graduate Student, Electrical Engineering
Theresa	Yera	2012	Anthropology, Pre-Med	Syracuse University	Grad Student, Researcher
Yun	Zheng	2012		Albany Molecular Research, Inc. (AMRI)	Research Scientist I
Jonathan	Ahmedu	2013	Mechanical & Aerospace Engineering	Kohasa Engineering Company Ltd. in Port Harcourt, Nigeria; Cornell University	Pipeline Engineer; Masters student
Summar	Amin	2013	Biomedical Sciences	University at Buffalo Dental School	Dental Student
John	Brito	2013	Biological Sciences	Columbia University	Graduate Student
Nicholas	Costable	2013	Biological Sciences	UB Medical School	Medical Student
Akeem	Francis	2013	Electrical Engineering	University at Buffalo	Graduate Student - School of Engineering
Johnathan	Goodrum	2013	Electrical Engineering	Amazon	Software Engineer Internship

Johnathan	Goodrum	2013	Electrical Engineering	Amazon	Software Engineer Internship
John	Habert	2013	Biological Sciences	United States Marine Corps	
Christ Ange	Katche	2013	Pre-Pharmacy	University at Buffalo School of Pharmacy	PharmD/MBA Student
Muhammad	Khan	2013	Mechanical & Aerospace Engineering	Northrop Grumman	Reliability Engineer (Florida)
James	Lopez	2013	Psychology	Power U Center for Social Change (Miami, Fla)	Community Activist
Ayo	McKenzie	2013	Chemistry	Temple University	PharmD
Andrews	Obeng-Ayarkwah	2013	Pharmaceutical Sciences	University at Buffalo School of Pharmacy	Pharmacy Student
Michael	Singletary	2013	Electrical Engineering (Mathematics-minor)	United States Army	Officer/ Helicopter Pilot
Alexandria	Trujillo	2013	Biological Sciences	University at Buffalo	PhD Student - Pharmacology & Toxicology
Uzoamaka	Aniagba	2014	Biological Sciences	Indiana University School of Medicine	Medical Student
Warren	Barrett	2014	Chemistry	University at Buffalo School of Pharmacy	PharmD/MBA Student
Leatrice	Bennett	2014	Biological Sciences	UB School of Public Health	Graduate Student
David	Bratton	2014	Biological Sciences	Jacobs School of Medicine & Biomedical School	Medical Student
Kevin	Carpio	2014	Mechanical & Aerospace Engineering	Northrop Grumman (California)	Aerospace Engineer (Palmdale, California)
Kemji	Eke	2014	Biology	Roswell Park Comprehensive Cancer Center	Clinical Regulatory Associate
Robert	Ferguson	2014	Biology	University at Buffalo Dental School	Dental Student
Akunne	Kanu	2014	Public Health	University at Albany	Graduate Student - Public Health, Epidemiology
Jacob	Milling	2014	Biology	UB Jacobs School of Medicine & Biomedical Science	Medical Student
Abas	Omar	2014	Biology	Roswell Park Comprehensive Cancer Center	Clinical Observation Dental Maxillofacial Department
Austin	Price	2014	Biology	UB Jacobs School of Medicine & Biomedical Science	Medical Student
Timothy	Semon	2014	Anthropology	Marquette University	Dental Student
Hamlet	Spencer	2014	Mechanical Engineering	University at Buffalo	Completed MS program
Bethany	Walton	2014	Completed MS	University at Buffalo	Social Worker

Bethany	Walton	2014	English	University at Buffalo	Graduate Student - School of Social Work
Christina	Aponte	2015	Biomedical Sciences	Meharry Medical College School of Dentistry	Dental School Student
Kwame	Boakye-Yiadom	2015	Biological Sciences	University at Buffalo School of Pharmacy	PharmD/MBA Student
Kelly	Boamah	2015	Pharmacology & Toxicology	D'Youville School of Pharmacy	Pharmacy Student
Joaquin	Canay	2015	Biotechnology	Thermo Fisher Scientific	Graduate Student
Jennifer Lynn	Donato	2015	Biotechnology	Oishei Children's Hospital	Biotechnologist
Mark	Estudillo	2015	Mechanical Engineering	New York University	Graduate Student
Shawn	Gibson	2015	Biomedical Sciences	UB Jacobs School of Medicine and Biomedical Science	Medical Student
Hoda	Moussa	2015	Biological Sciences	University at Buffalo Law School	Law Student
Peter	Okorozo	2015	Pharmaceutical Sciences	University at Buffalo School of Pharmacy	PharmD/MBA Student
Folake	Olaleye	2015	Biological Sciences	D'Youville School of Pharmacy	PharmD Student
Oluwatosin	Oniyide	2015	Biological Sciences	Albert Einstein College of Medicine	Medical Student
Rasheen	Powell	2015	Pharmacology & Toxicology	University at Buffalo	PhD Student - Pharmacology & Toxicology
Valeria	Prieto	2015	Civil Engineering	UB School of Engineering	Graduate Student
Zakiya	Rhodie	2015	Pharmacology & Toxicology	UB School of Pharmacy	PharmD Student
I'Yanna	Scott	2015	Biological Sciences	Chatham University	Master's in Biology student
Marcus	Ashford	2017	Electrical Engineering	University at Buffalo	Continuing Student
Leon	Butcher IV	2017	Psychology	Applying to Dental School	Dental Assistant
Kennedy	Colon	2017	Civil, Structural & Environmental Engineering	University at Buffalo	Continuing Student
Leonardo	Gobbato	2017	Chemical Engineering	University at Buffalo	Continuing Student
Blessing	Hunsu	2017	Chemistry	University of Binghamton School of Pharmacy	Pharmacy Student
Starr	Johnson	2017	Pharmacology & Toxicology	University at Buffalo	Continuing Student
Coral	Lopez-Jimenez	2017	Chemistry	University at Buffalo	Continuing Student
Neneyo	Mate-Kole	2017	Pharmacology & Toxicology	UB Jacobs School of Medicine and Biomedical Science	Medical Student
Lawrence	Owusu	2017	Chemistry	University at Buffalo	Continuing Student

Ariana	Roman	2017	Nursing	University at Buffalo	Continuing Student
Godfrey	Sakyi	2017	Electrical Engineering	University at Buffalo	Continuing Student
Sameer	Shakur	2017	Electrical Engineering	University at Buffalo	Continuing Student
Tyree	Singleton	2017	Industrial Engineering	University at Buffalo	Continuing Student
Ashley	Solomon	2017	Nursing	University at Buffalo	Continuing Student
Cassandra	Ware	2017	Computer Science & Engineering	University at Buffalo	Continuing Student
Makayla	Watson-Wales	2017	Speech & Hearing Science	University at Buffalo	Continuing Student

# CSTEP 2018 SUMMER RESEARCH PROGRAM STAFF



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# 2018 CSTEP SUMMER RESEARCH INTERNS



2018 CSTEP Research Interns field trip to Hauptman-Woodward Institute (HWI) with Dr. Bill Bauer