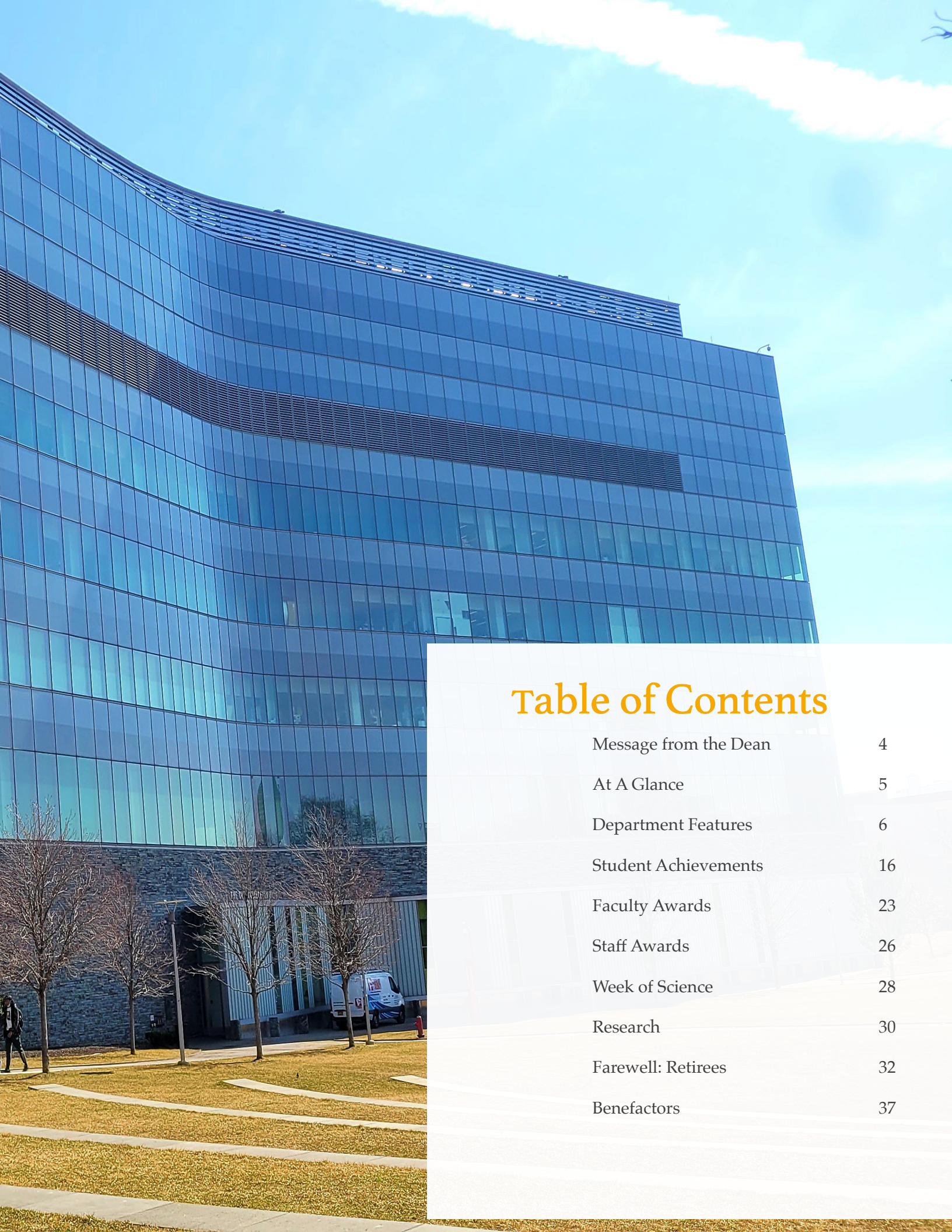
Annual Report
2021-2022

Division of Science

The City College of New York



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Message from

The Dean of Science

A Message From The Dean

Hello everyone,

This past year has seen a steady return to some feelings of normalcy for us, with more and more classes being held in person and the return of events. One of the most special occasions each year is, of course, the wonderful ceremonies celebrating our graduates. We were thrilled to gather together in the Great Hall for the Division of Science Commencement and then the next day, to unite on the South Lawn for the full College Commencement Ceremony. I know that there was pride in our Science graduates in sharing the special day with honorary degree recipient Dr. Anthony Fauci, one of the nation's most dedicated leaders in infectious disease and public health and an inspiration to us all as we traversed the uncertain times throughout this pandemic.

We congratulate the Division of Science Valedictorian, Kazi Maisha as well as Ali Khalil, who was named the City College Class of 2022 Salutatorian as well as Abbe Pannucci, who was featured as a Great Grad this year.

We were also able to present some of our Week of Science events in person this year - and what a jam-packed week it was! We collaborated on a Sustainability Fair, held in the Quad, hosted a student book club with author Ainissa Ramirez, and held both live and virtual Planetarium shows, which are always crowd pleasers. For the first time, we held a Scientific Photo contest and the two winning pieces are now hanging in the entrance hallway to the Marshak Science Building. It was also incredibly special to be able to have some of our previous Distinguished Alumni award winners join us on campus for a special celebration - and to present this year's winner, Dr. Jing-Mei Hsu, with her award.

Research continues to be the core of our strength in the Division, with several major new awards coming in from funding agencies, particularly NASA, NIH, National Science Foundation. Undergraduate students were finally able to come back into the labs for research this past year and even more excitingly, had opportunities to present their work at symposia here on campus and at major conferences such as the Society for the Advancement of Chicanos and Native American Students and the Annual Biomedical Conference for Minority Students.

This year also contained some goodbyes, with several faculty and staff retiring and we wish them all the best in this next chapter. We were also terribly saddened to lose Distinguished Professor Myriam Sarachik in October 2021. Myriam was not only a talented, ground-breaking physicist who left a lasting mark in condensed matter physics, but also a fierce proponent of equity and justice and a delightful colleague. We are grateful to her and her family for their generous gift in her memory that will help to support scientists from all over the world to spend time working here on our campus. Enhancing collaboration and collegiality are a fitting tribute to her work and life.

While there was much to celebrate this past year, there's no question that there are still many challenges. The global pandemic caused severe disruptions and we know that it has taken a toll on each of us in myriad ways. I am deeply grateful for the support that we have been shown by our alumni and other supporters and for the commitment of the members of the Division of Science to helping us fulfill our mission to serving the students, each other, and the broader community as we continue our tradition of excellence in research and in teaching.

Dr. Susan Perkins
Martin and Michele Cohen Dean of Science

At A Glance
2021 - 2022

349
BACHELORS DEGREES AWARDED

17 DEGREE PROGRAMS: BS, MS & BSMS
*Biochemistry *Biology
*Biotechnology *Chemistry
*Earth & Atmospheric Sciences
*Mathematics *Physics

108
FULL-TIME FACULTY

1535
NUMBER OF MAJORS

15.9 million
GRANT DOLLARS

64
GRADUATE DEGREES AWARDED

06
ACELERATED MS PROGRAMS
* Biology *Biochemistry
* Biotechnology
* Chemistry *EAS
*Math

1807
GRADUATE CREDITS TAUGHT

06
PH.D. PROGRAMS
* Biochemistry * Biology
* Chemistry * Earth and Environmental Sciences
* Mathematics
* Physics

32419
UNDERGRADUATE CREDITS TAUGHT

71%
MEDICAL SCHOOL ACCEPTANCE RATE

10%
SCIENCE MAJORS CONDUCTING RESEARCH

Biology Features

Biology

CCNY faculty are on the cutting edge of research in topics as diverse as global biodiversity, genetic links between diabetes and Alzheimer's disease, or how the immune system fights pathogens. Students mentored in their labs have traveled as far afield as the Galapagos Islands, tracing the footsteps of Charles Darwin, and as close to home as Harlem, studying health disparities in this changing neighborhood. With over 650 Biology majors and over 70 publications in the past 3 years, the Biology Department's other highlights:

Associate Professor Mark Emerson was the recipient of an Early Career Mentor Award from the Council of Undergraduate Research (CUR) Biology Division. This prestigious award is given to Biology mentors for their consistent work cultivating new undergraduate researchers.

CCNY cancer expert, Professor Karen Hubbard, is developing ways to increase diversity of patients in clinical trials. This effort is funded by a $6 million Stand Up To Cancer grant. A recent U.S. Food and Drug Administration report noted that only 4% of clinical trial participants are Black and 5% are Hispanic. Hubbard aims to make a change to reach out to communities to educate people early in their diagnosis so they can be aware of clinical trials.

Entomologist and Associate Professor David Lohman, has discovered an Asian butterfly that acts like other poisonous species as a defense mechanism against predators. Lohman and his team examined the genomed of various samples of butterflies across Asia to find the genes responsible for the butterfly's color development..

Cholera is a fatal disease if not treated right away and Professor Stefan Pukatzki is developing new ways to analyze the cholera microbe and the chances of a pandemic strain emerging. His research contributes to the understanding of how these pathogens evolve and how they could potentially become a pandemic.

In addition to the research being done in Biology, numerous faculty were recognized for their work. Dr. Shubha Govind joined the editorial board of PLoS One as an Academic Editor in February 2022. Dr. Susan Perkins, CCNY's Dean of Science and a Professor of Biology, was elected to the Board of Directors for the American Institute of Biology Sciences. Dr. David Lohman joined the editorial board of the Journal of Tropical Ecology in Fall 2021.

Dr. David Lohman conducting research on butterflies in Southeast Asia.

Chemistry & Biochemistry Features

Chemistry & Biochemistry

The Department of Chemistry & Biochemistry's goal is to provide rigorous training for undergraduate and graduate students, to integrate leadership, mentoring, curiosity and creativity, inclusion, the scientific method, and the belief that an ethical application of chemistry, the central science, can benefit the world for the greater good.

They have made this happen through many initiatives and hard work done by faculty tackling different areas. Professors Ruth E. Stark and David Jeruzalmi received a NSF grant of $3 million in order to create support networks for full-time research, mentoring, and training for recent graduates who may not have had access to these opportunities while in college. Stark also received a $833,284 grant from the NSF to provide a major upgrade to the research equipment at CCNY.

Many efforts have been made to try and increase diversity in various STEM fields. Professor and Chair Stephen O'Brien and Dr. Ruth E. Stark have also received a $3 million NSF grant to launch a Nanoscience Connected to Life initiative to help address the lack of diversity and representation of Ph.D. students. Maria Tamargo is the principal investigator of a $5 million phase 2 NSF grant to fund the Centers of Research Excellence in Science and Technology (CREST), which aims to enhance research capabilities of minority-serving institutions.

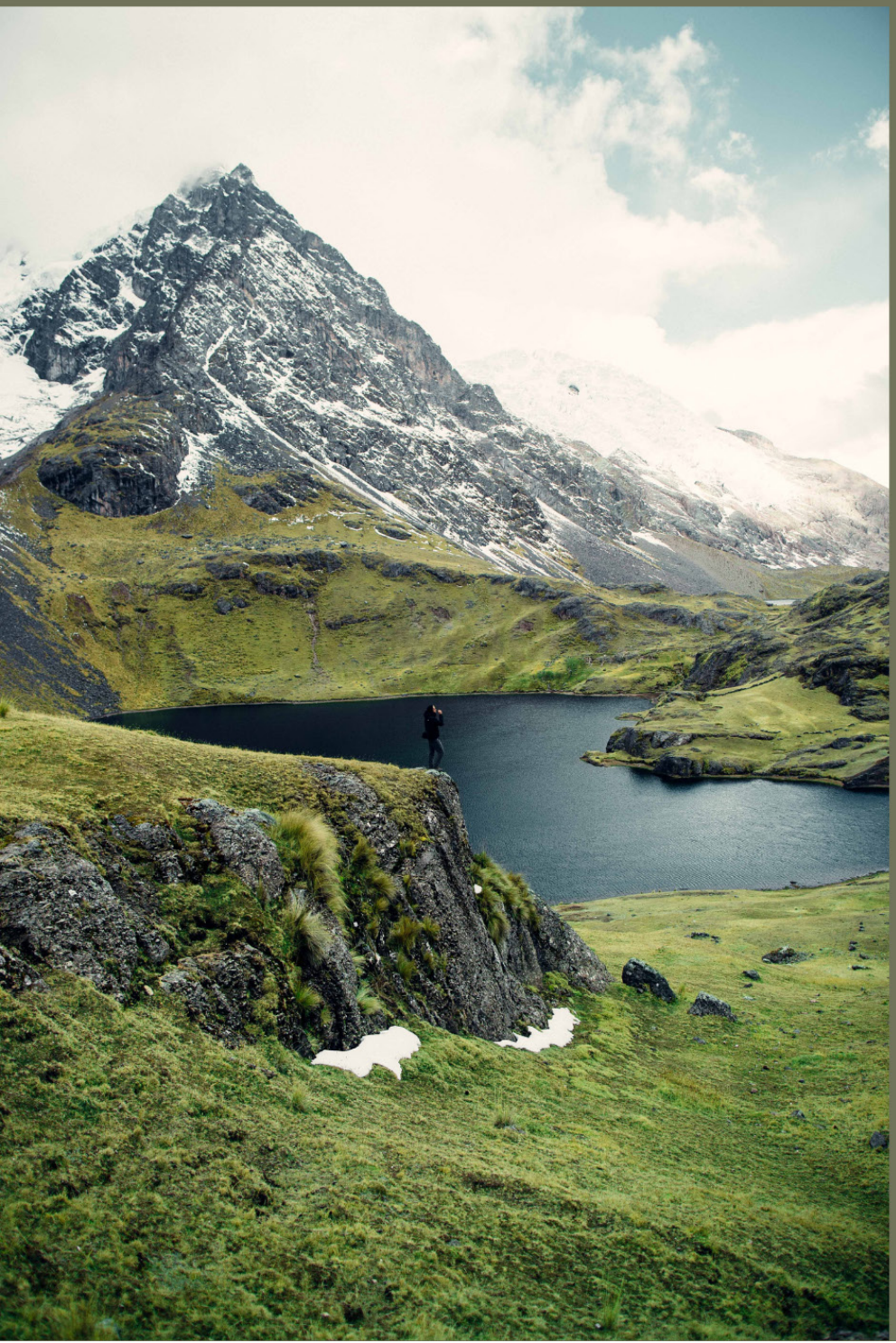
Professor David Gosser has partnered with Sarah Lawrence College Physics Professor Merideth Frey and Chemistry Professor Colin Abernethy to launch a project supported by the Instructional Undergraduate Science Education division of the National Science Foundation and entitled "Making NMR Resonate with Students: Integrating NMR into the Undergraduate Science Curriculum." During the summer of 2022, their students toured the CCNY Solid-state Nuclear Magnetic Resonance (NMR) Facility located in the CDI Building and learned about the power of this spectroscopic research technique for structural studies of sustainable battery materials, essential proteins for human health, and macromolecular composites from plant or fungal sources.

There have been numerous publications to push the boundaries of chemistry as well. Assistant Professor Daniel Keedy has been researching the atomic-level understanding of enzymes while also receiving the $100,00 Cottrell Scholar Award for excellence in teaching. O'Brien has also been working on designing nanoparticles that can communicate and possibly stop the growth of cancer cells. Tamargo was the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) 2021 Distinguished Scientist Award recipient. Dr. Teresa Bandosz has also become one of CUNY's latest Distinguished Professors, which recognizes her work.

Not only are the faculty very accomplished in their fields, but the students they train are tremendously talented as well. Ph.D. student, Roksana Azad, was awarded an F31 predoctoral Fellowship of $97,000 over the course of three years from the National Institute of Health (NIH). Xingjian Xu, another Ph.D. student, won the 2022 Horst Schulz award, which is the most prestigious award from the CUNY Graduate Center's program in Biochemistry. One of O'Brien's Ph.D. students, Nasim Farahmand (Ph.D. '22), moved to the U.S. from Iran for graduate school,and has begun her career as a senior scientist at L'Oréal, the largest cosmetic company in the world.

Students visit CCNY Solid-state Nuclear Magnetic Resonance Facility in CDI . (L-R) Bibi Alli (CCNY), Distinguished Professor Ruth Stark, Mahisha Akhand (CCNY), Afia Khan (Sarah Lawrence College) and Facility Manager Dr. Hsin Wang.

Earth & Atmospheric Sciences Features



Earth & Atmospheric Sciences

The new face of Earth and Atmospheric Sciences (EAS) is Earth System Science which deals with "how the earth works," bridging the traditional fields of geology, meteorology, chemistry, biology, and civil engineering, and strongly focusing on environmental issues. This comprehensive, interdisciplinary approach enables research active faculty to address such issues as climate change, groundwater remediation, environmental microbiology, and renewable energy, to name just a few. EAS faculty have been very busy this year. Over 70% of EAS faculty are conducting funded research through NASA, NOAA, NSF and DOE, center and institutional grants. Over the years EAS majors have grown to between 75 and 100 majors between the EAS degree seekers and the joint programs with the Grove School of Engineering: Earth and Environmental Science (EESS) and Earth System Science and Environmental Engineering (ESE).

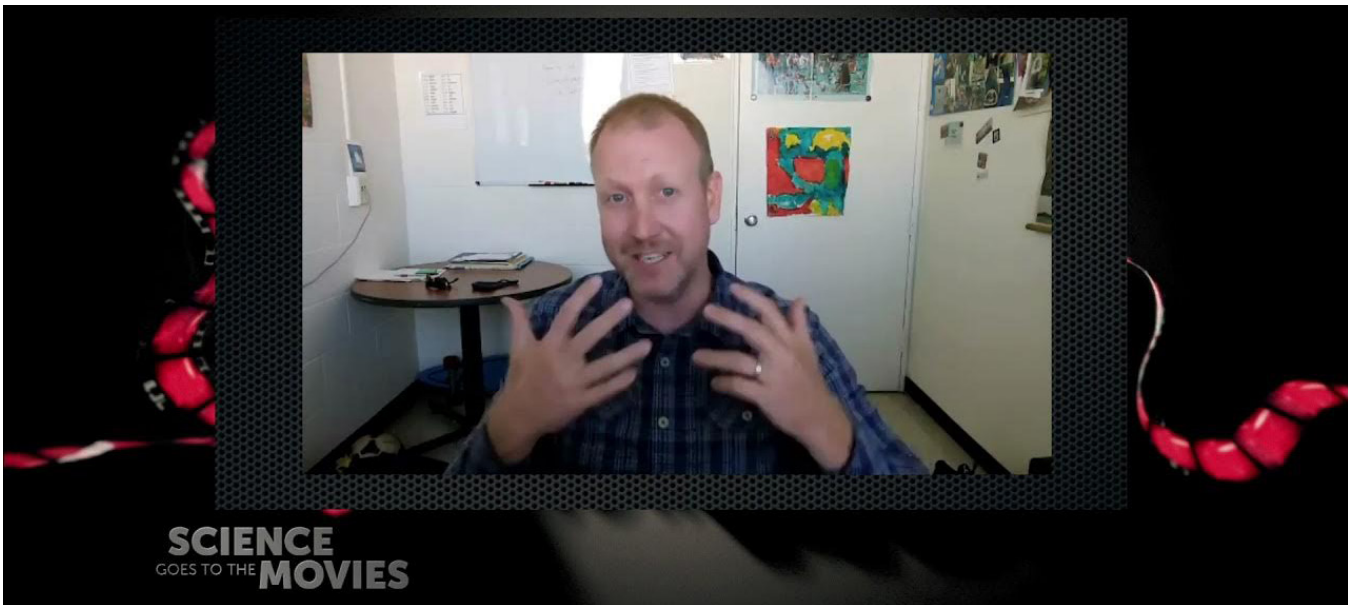
Associate Professor James Booth has been busy with teaching and research. Two Ph.D. students mentored by Booth graduated in 2022 from the CUNY Graduate Center. In January, Veeshan Narinesingh graduated with a Ph.D. in Physics. His research focused on atmospheric blocks, which are semi-stationary wind patterns that can disrupt the jet stream and create extreme events. These phenomena has become increasingly important as we witness more and more extreme weather events. Veeshan is now a postdoctoral research fellow at Princeton University. In April, Katherine (Katie) Towey graduated with a PhD in Earth and Environmental Sciences. Her research focused on precipitation and coastal flooding hazards in the Northeast United States. Towey is now a physical risk geospatial analyst at MSCI Inc. Professor Booth has active grants with NASA and NSF that focus on an array of topics such as atmospheric rivers, to midlatitude cloud impacts on global albedo, as well as the atmospheric blocking and weather hazard work he guided as part of Veeshan and Katie's dissertation work.

Professor Z. Johnny Luo is another EAS powerhouse. In November of 2021 he and his collaborators won a $177 million satellite mission award (Investigation of Convective Updrafts) from NASA. As a co-Investigator of the project, Luo will receive $1 million to develop two satellite products and to recruit and train students at CCNY to participate in the upcoming NASA mission.

As Lead PI, Luo's proposal to the NASA CloudSat-CALIPSO Science Team Recompete entitled "Developing A Satellite-Based Convective Mass Flux Dataset for Evaluating and Improving GCM Cumulus Parameterization" was selected in March 2022 with funding of $573,240. With this grant, he will continue to develop a satellite-based convective mass flux dataset and test it in global climate models.

In the progress that has been made over the past decades in understanding cloud properties, processes, and their weather and climate feedbacks, and to explore strategies to tackle the issues that remain unresolved, Luo edited a new book entitled "Studies of Cloud, Convection and Precipitation Processes Using Satellite Observations" that will be published in October 2022 by World Scientific.

Luo's Ph.D. student, Jeyavinoth Jeyaratnam (JJ), who is completing his degree soon, has accepted a job offer with WattTime (www.watttime.org) as a Data Engineer. WattTime is a clean energy company that strives to reduce greenhouse gas (GHG) emissions.



Dr. Jimmy Booth discusses "The Aeronauts" on CUNY TV's "Science Goes to the Movies" series.

Mathematics Features

Mathematics

The Department of Mathematics at City College has a wide range of cutting-edge researchers in various fields such as algebra, dynamics, probability, computational mathematics, and a long legacy of incredible mentors and leaders. Mathematics Professor, Jesse Douglas, was a recipient of the first Fields Medal in Mathematics --regarded by the profession as the equivalent of the Nobel prize. Robert Aumann('50) became a Nobel laureate in 2005 for his work in economics. Hundreds of others have become mathematics educators, business executives, and respected faculty in colleges and universities throughout the country.

Distinguished Professor, Michael Shub received a Fullbright U.S. Scholar grant to travel to Uruguay. The Fullbright program began in 1946 and has had more than 370,000 participants in the program, of which 60 have won Nobel prizes and 88 have won Pulitzer prizes. This is all in addition to Shub's work, which has been cited by over 2000 mathematicians.

Associate Professor Jack Hanson was awarded the prestigious 2021 CUNY Junior Faculty Research Award in Science and Engineering (JFRASE). A panel of reviewers chose Hanson's project for this highly selective award because they were convinced of its potential to make a significant contribution to society, to CUNY, and to his field. Hanson joins a select group of 22 CUNY faculty who have won this award since 2012.

Associate Professor Shirshendu Chatterjee received a $250,000 National Science Foundation grant from the probability program. His primary goal is to understand and analyze structural properties and limiting behavior of various spatial and non-spatial random graph models and several stochastic dynamics taking place on graphs. Modern real-world data provides many challenges to our society which require more tools to analyze and understand. This area of research has applications in neural networks, pandemic management, and the evolution of social interactions.

Math majors are also doing incredible work. Max Sehaumpai, a junior at CCNY, won a 2022 Barry Goldwater Scholarship. This federally funded scholarship is America's premier award for undergraduates majoring in math, science, and engineering.

Dr. Martin Scmoll (Clemson University), Dr. Tamara Kucherenko (CCNY), Dr. Christian Wolf (CCNY), Dr. Yun Yang (Virginia Tech) visit Oberwolfach Research Institute in Germany as Oberwolfach Leibnz Fellows.

Physics Features

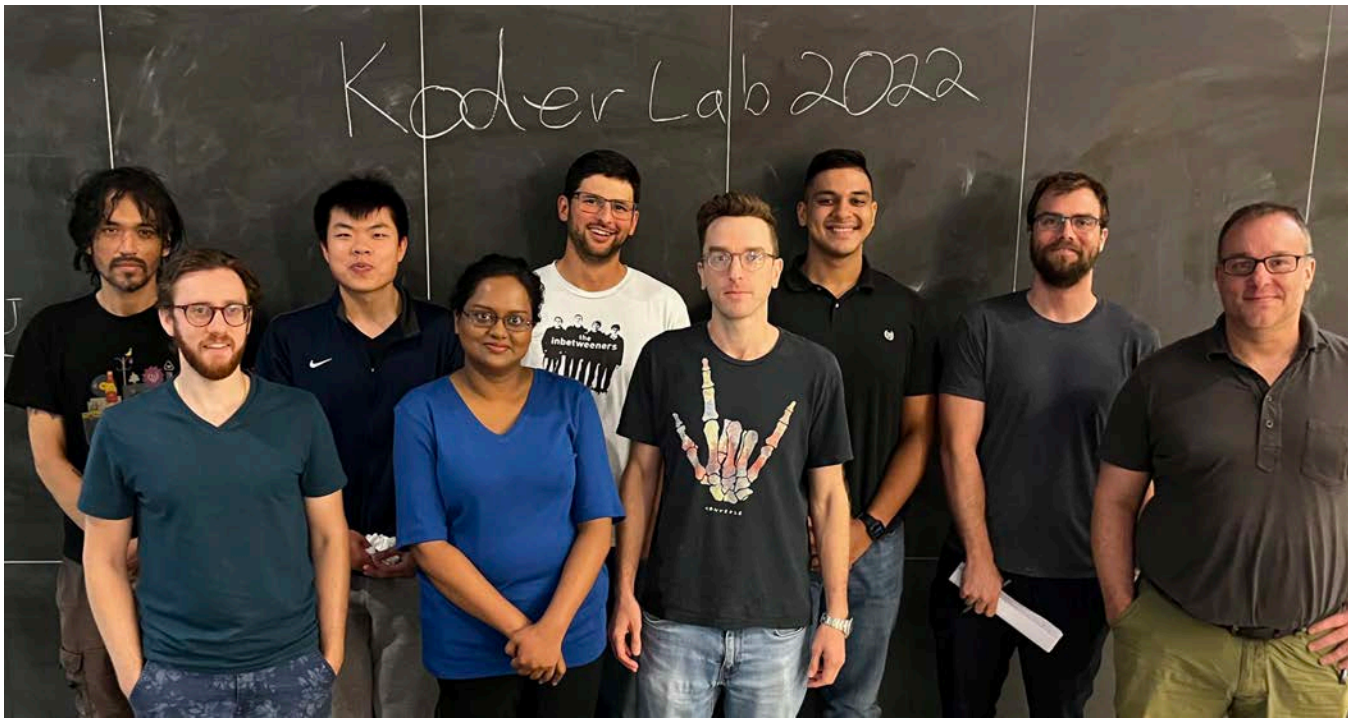
Physics

The Department of Physics at City College has a long tradition of distinguished faculty and students. Today, the Department continues to reflect this tradition of scientific excellence by carrying out internationally recognized cutting edge research and providing exceptional educational opportunities. The faculty include members of the National Academies of Sciences and National Academy of Engineering, and fellows of the American Physical Society, Optical Society of America, and the American Academy of Arts and Sciences.

Professor Ronald Koder's research team created the first ever selective VX neurotoxin detector to potentially save lives from the deadly chemical warfare agent. Professor Lia Krusin-Elbaum is pioneering ways to resolve key limitations of topological insulators to apply to fully fabricated nanodevices. There has also been a new discovery, led by Dr. Carlos Meriles, that manipulates defects in semiconductors in order to help process quantum information. Distinguished Professor Robert R. Alfano and his team of scientists have been trying to observe and demonstrate that quantum events occur in nature. "It has been theorized that quantum events occur in nature, but it hasn't been measured until now. These are the first steps in understanding that quantum effects occur in nature and biology," Alfano said.

The National Science Foundation (NSF) has funded a five-year $25 million Science and Technology Center grant to bring together scientists and engineers from various universities. CCNY is one of these universities and Professor Vinod Menon said, "It is exciting to be part of this Center which brings together world renowned experts in nanoscience, photonics, and quantum devices."

Distinguished Professor Myriam Sarachik passed away on October 7, 2021. "Myriam Sarachik embodied the very best values of our college," said CCNY President Vincent Boudreau. She was not only an extremely accomplished scientist, but she overcame bias against women in science, became a mentor, and advocate for those whose voices were not heard. Before her passing, she pledged a $1.5 million gift to CCNY to establish a fund for a visiting professorship in Physics.



Members of the Koder Lab, where a new neurotoxin detector was developed. Top (L-R): Mohammad Khan, M.S. students, Jim McCann, Postdoctoral Research Associate. Bottom (L-R): Jake Syetta, M.S. student, Dharshika Malwane, Ph.D. student, Jonathan Preston, Ph.D. student, Ronald Koder, Professor

Student Achievements
Division of Science Valedictorian

Kazi Maisha

When Kazi Maisha moved from Bangladesh to Manhattan at age 12 there was, unsurprisingly, a tremendous culture shock. But for Maisha, some of the changes were particularly welcome. In her homeland, she was acutely aware of the vast disparities in educational opportunities for boys and girls—her aunt never went to school and her mother was pulled out of school for marriage and sometimes in class she would have to shout out answers just to be heard by her teachers who favored the boys.

But in New York she found just as many girls as boys in her classes, in middle school and when she made her way to Stuyvesant, one of the nation's most prestigious high schools, "The gender ratios here were definitely a surprise but it was a nice feeling," says Maisha.

Maisha was the Division of Science valedictorian but in high school she almost took a different route. "I was interested in theater and the arts and did a lot of Broadway internships," she recalls. But eventually she decided the arts were "more volatile" and she shifted her focus to science.

Maisha came to CCNY knowing that she wanted to study biology and she found the school to be perfectly suited to her needs. "I tell my friends that City College is the best university to go to for science in the City," she says. "Everyone here is proactive and you can tell the staff really care. The teacher to student ratio is great and the faculty are approachable. There are a lot of research opportunities and there are scholarships for continuing students, not just incoming students. Earning Division of Science Scholarships meant I didn't have to work other jobs as much."

Through Colin Powell's S. Jay Levy Fellowship, Maisha found a spot as a medical research intern at NYU Langone, and through CCNY's Division of Science, she was accepted into the CCNY-MSKCC research program, where she was able to represent CCNY at national research conferences. She plans to volunteer on a medical mission in Ecuador and she is readying herself to become a doctor. "I want to be a doctor that goes to these poor countries and opens up affordable and accessible clinics, so I want to get experience abroad and then get a medical degree and a Masters of Public Health together to pursue my goals."

> "I want to be a doctor that goes to these poor countries and opens up affordable and accessible clinics..."

Student Achievements

Great Grads

> "I want to dedicate my life to giving back to cancer research and the cancer community."

Abbe Pannucci

Abbe Pannucci is currently working on cancer cells in a lab at the University of Pittsburgh Medical Center. Pannucci graduated from Macaulay Honors College at CCNY but she'd known for a decade that this was the kind of work she wants to do.

"I want to dedicate my life to giving back to cancer research and the cancer community," she says. Pannucci was diagnosed with Stage 4 cancer at age ten, leading to two years of chemotherapy and radiation therapy.

Still, it took a few years until she was certain of her path. "I was passionate about learning about science but I didn't know if I'd be good at it." She took on a biology lab internship while in high school to get a taste of what this world would be like and then spent as much time in labs as possible at CCNY, where she majored in Biotechnology.

She worked in the labs of Professor of Biomedical Engineering Marom Bikson and Dean of the Division of Science Susan Perkins, a biologist and her thesis advisor. She also interned at Rockefeller University and Columbia University Medical Center. But even as she settled into a New York life, this Maryland native kept her ties at home, volunteering as a patient advocate for Children's National Medical Center in Washington, where she was treated, to help to improve the experience of current patients and to encourage new research in pediatric oncology.

"I sit on a board with other previous patients and doctors providing input about little things they can do to make life in the hospital less miserable in a way that a doctor might not pick up on," she says. During college, she says everyone was "very supportive," explaining that the Macaulay program was how she met her best friends and found her way in New York, but it was her City College professors "who shaped me into a scientist."

"They gave me the flexibility and opportunities to do everything I wanted and almost every professor I asked about volunteering in their lab said yes," says Pannucci, who minored in philosophy. "Everyone wanted to help me achieve my dreams."

Student Achievements

Great Grads

> "I could just spend hours in the lab. I love research and maybe I can find a solution to end cancer."

Ali Khalil

"Research is the answer to everything," says Ali Khalil.

Born in Egypt, Khalil was exposed to the power and limitations of medicine as a young boy when his brother had to go for cancer treatments. "I would go with him to the hospital every day and that is what drove me to want to become a doctor," says Khalil, the CCNY 2021 Salutatorian.

Khalil emigrated to Queens in 2016, where he lived with his father while his mother and sister remained in Egypt. After two years finishing high school, while struggling to learn English, he enrolled at City College. He felt somewhat of a culture shock at New York's diversity when he arrived but at City College he was also thrilled to find others who shared his culture and his language. "It really helped me feel comfortable," he says.

The professors also helped him adjust. "They felt like family and helped me navigate everything," Khalil says, adding that his cousins are engineers, so he was on his own at home when it came to science.

Khalil joined the research group at the Center for Discovery and Innovation working on synthesized silver and gold nanoparticles for drug delivery purposes. When the pandemic hit and his lab shut down he also needed to earn money to help support his family so he landed a COVID-19 internship as an emergency data relief intern with Tracy Flood Broadstreet doing data entry, tracking, data visualizations, and researching whether vaccine availability was equitable in all areas of NYC. Khalil still aims to become a doctor. "There's gratification every day and you can help save a life," he says, but he wants to continue doing research too. "I could just spend hours in the lab. I love research and maybe I can find a solution to end cancer."

Student Achievements

The Annual Biomedical Conference for Minority Students

There were 4,000 participants in the 2021 Annual Biomedical Research Conference for Minority Students (ABRCMS) and City College produced eleven winners! Here are three stories featuring the Division of Science winners:

Goodness Njoku-Austin

Goodness Njoku-Austin never went to a doctor when she was a child, first in her native Nigeria and then in Belize. "When I was eight I moved to New York and went to a pediatrician, I don't think I even knew what a doctor was," she says. By the time Njoku-Austin, whose ABRCMS project was "Factors associated with poor outcomes of childhood cancer in Africa," reached CCNY, she knew she wanted to change the world she grew up in. Njoku-Austin majored in Biology but also studied social and behavioral sciences and public health.

"I loved biology because I love learning about the human body and how systems work," she says. Now she is studying for the MCAT and her goal is to become a doctor and then go back to Nigeria with the "wealth of knowledge" she is accumulating here and open a hospital.

She recently had a physician as a mentor who was creating a hospital in Ghana. It was the kind of "perfect fit" for her interests that she says makes CCNY so special. "CCNY has a way of getting everyone plugged in," Njoku-Austin says. "I can't tell you the amount of times I've been bombarded by opportunities and events-- you can't ignore it even if you wanted to! They give you such a wealth of information and so many connections and chances to see what's going on in the community."

Ekene Onwubiko

When Ekene Onwubiko was growing up in Nigeria, her brother and her grandmother both fell ill and had to fly to India for specialized care. Her grandmother had breast cancer and her home country didn't have cancer centers. "That sparked my interest in cancer research," says Onwubiko, who shadowed a surgical oncologist and believes that's where her future lies.

After receiving mentoring through the CCNY Partnership Undergraduate Research Training (PURT) program, she went on to win at ABCRMS with her presentation on "Pathologists' Perceptions about Access to Immunotherapy for Breast Cancer: A Qualitative Analysis."

"City College professors gave me opportunities and encouragement—I didn't even know about Honors Biology until one professor told me to try it," says Onwubiko, who also credits the City College Academy for Professional Preparation (CCAPP) with helping her down her path. Now Onwubiko, who volunteered and raised awareness for colorectal cancer for Nigerians through the Memorial Sloan Kettering Cancer Center, is readying herself for medical school. She wants to continue helping her homeland but also sees a future need for doctors like her here in America.

"Breast cancer is so prevalent among Black women here and there are innate genetic risk factors," she says. "But Black women have trouble trusting the system here so having representation through doctors that look like me could make a real difference."

Student Achievements

The Annual Biomedical Conference for Minority Students

Mykel Barrett

Mykel Barrett loves research and so his success at the ABRCMS—his presentation was on "Bioinformatic and Experimental Evaluation of Transcription Factor Binding Site Specificity Within the Context of the Developing Retina"-- should come as no surprise.

Barrett doesn't just want to share his ideas with other scientists, he wants to reach the average person and explain it all to them. Barrett, whose interest in science was nurtured as a child by watching Discovery Channel, Animal Planet and Nova, and he developed an interest in writing in high school when he took a summer journalism course. He then interned at City Limits magazine and later earned some bylines there; he has also written for CCNY's newspaper.

While his father encouraged Barrett to major in English, he says his course was set when he took genetics freshman year. "Nothing seemed more interesting than the microscopic stuff and how molecules work," he says.

Still, Barrett hopes to blend his interests in the long run. "I would love to be a science writer. I'll only be happy if I'm doing scientific research as my main focus but then I'd love to communicate those findings to the public in a way that makes it accessible."

Barrett also took part in a selective National Science Foundation funded research training and outreach program at CCNY that led him to teaching genetics to minority youth in Harlem and East Tremont, including at his former middle school. He was hoping to found a CCNY Chapter of "Black in Neuro," to empower disempowered minority neuro- students. "It's important to me to help bring more minority students into STEM," he says, adding that most colleges have few Black faculty members. "If you're looking for a role model, people may not appreciate the complexities of your experiences if you're from a different background. I want to help people consider academic research or science as a viable career option."

Student Achievements

Jonas E. Salk Scholarships

One of CUNY's most prestigious awards is the Jonas E. Salk Award, an annual scholarship of $8,000 granted to eight students accepted into medical schools or graduate programs in the biomedical sciences. It is named for the City College alumnus who developed the first polio vaccine—who turned down a ticker tape parade instead requesting that the money fund these scholarships, In 2022, three of the students selected, based on their research papers, were from Division of Science of City College.

Kelly Veerasammy

At CCNY, Kelly Veerasammy's path to medical school led her to the pre-med track while she also studied biomedical physics; she also worked as a research assistant at the CUNY Advanced Science Research Center.
But the road started at home with her father's struggle with shingles. "It was relatively new back when he had it and he like so many older members of the Caribbean community, didn't want to go to a doctor," says Veersammy, who is of Indo-Caribbean descent but who grew up in South Ozone Park. "They say, 'I can take care of it myself' or 'Doctors just want to push medicines on me and won't hear me out.'"

Her research for the Salk Award involved neuroscience and imaging, because neuroscience has an impact on the areas of human health that interest her (Shingles, she points out, is a neural disease).

Now she wants to become a doctor because she believes she'll be able to communicate with those reluctant to seek treatment. One way is to get to people before they become sick.

Veerasammy, who was vice president of CCNY's Bollywood Fusion Dance team, is getting certified as a trainer and wants to bring her passion for fitness to Downstate Medical School. "I want to expose the Caribbean community near there to an idea of health and wellness that's accessible to them."

Leandro Marcelino Pimentel

Leandro Marcelino Pimentel grew up coping with asthma. "One minute I could be dying and then I'd use my inhaler and the next minute I'd be okay," he says. "Science was so useful. That's what got me interested in medicine." But Pimentel, who was born in the Dominican Republic and moved to Queens as a teenager, didn't have a clear picture of how he could move toward a career in medicine.

"There was no path for me to follow," he says, explaining that he was the first person in his family to attend college. "In high school I didn't have any resources and didn't think I was smart enough to do what I wanted to do. I went to a community college first and I was really good at chemistry, but I didn't even really know what research was."

Then he arrived at City College and found his path, and a CCNY "family" to guide him. "The fact that the faculty and staff here want you to succeed is so powerful," he says. "I learned from my professors, staff members and research mentors."

As a research student, Leandro participated in the NIH Bridges to the Baccalaureate Research Training Program as well as its Maximizing Access to Research Career Programs. He co-authored three scientific manuscripts.

Pimentel, who is pursuing a tri-institutional Ph.D. Program in chemical biology, initially thought he wanted to be a doctor but changed his mind while at CCNY. "I thought being a doctor was the best way to help people but then realized that doing research and being a scientist meant I could develop a treatment that could help even more people."

He hopes to one day head a pharmaceutical-based research group to develop novel cancer treatments. "Being a scientist means you never stop learning," he says. "You have to always ask what is going on and keep your mind open."

Student Achievements

Jonas E. Salk Scholarships

Joseph Idoko

Growing up on Staten Island, Joseph Idoko watched his father struggle with a series of medical calamities from seizures to strokes to diabetes to dialysis for kidney problems that Idoko thinks was the leading cause of his death.

But it wasn't just the medical issues his father faced that prompted Idoko to pursue a career as a doctor, it was the way the medical profession explained, or rather didn't explain things in a way his family could understand. "I remember my father going to the doctor and getting clinical advice or a diagnosis and he'd either just be going along with it or he'd be completely lost," Idoko recalls.

That personal experience combined with a passion for science, especially biology, propelled Idoko on the path that has brought him to NYU's Long Island School of Medicine. (He's on the surgery track but says "I'm really open and will see about other paths during our rotations.")

Another turning point was getting to City College and seeing scholarly articles that explained the science behind what he and family members had experienced while also learning the history behind disparities in medical treatment in America.

Idoko, whose research paper for the Salk Award was on flp-1 Disruption on the Behavior of Caenorhabditis elegans, says CCNY also taught him science in a way that was very different from high school. "I didn't come from a strong STEM background—in high school it was textbook learning, just basic things to pass the Regents," he explains. "But at City College the professors were doing active research and that motivated me—I'm not just learning things for exams but also I'm in an active field of research that I'm able to contribute to."

Having learned from his mother the importance of always giving back, Idoko, who got help with calculus through CCAPP as a freshman, also spent his CCNY years doing peer mentoring, tutoring and advising in programs geared toward supporting first-generation minority college students. "I knew I could help and wanted to be part of this effort to make things easier for other students," he says.

(L-R): Nkem Stanley, Joseph Idoko, Kelly Veerasammy, Marcelino Pimentel, Jonathan Levitt, Annietta Brown

Faculty Awards

Excellence in Research Award

Zhengzhao "Johnny" Luo

When it rains grant money, it pours. Z. Johnny Lou is being honored with the Dean's Award for Research, he says, because his work helped City College earn a piece of a $177 million new NASA collaboration.

The project, part of NASA's Earth Venture program, will use a unique measurement strategy to study the behavior of tropical storms and thunderstorms, including their impact on weather and climate models. The mission will utilize three SmallSats flying in tight coordination, called Investigation of Convective Updrafts (INCUS), and Luo helped develop the concept. (Launch is scheduled for 2027; Luo and his co-project leaders at Stony Brook University and Texas A&M will first use simulations to develop prototypical "products.")

Admittedly most of that money goes to developing hardware, including the satellites. But approximately, $1 million comes to CCNY for Luo and his team, comprising a post-doc and two graduate students that he will recruit, to develop the satellite data products.

"This was highly competitive with scientists across the country participating and we are proud that NASA selected our proposal," says Luo, a Professor of Earth and Atmospheric Sciences who became interested in physics in middle school and eventually focused on this field "because I wanted to study something that would have an impact on society."

After growing up in China, Luo came to New York for graduate school at Columbia University; it was there that he first got involved with NASA, working on climate change satellite missions. "I was so fascinated and excited," he recalls.

Luo was one of 12 lead mission SEAC4RS studying how convective clouds help process and transport air pollutants, including those from wildfires. Two years later, he and his peers received the NASA Group Achievement Award for their work.

This new mission will provide "the first global observation and investigation of the vertical transport of water by convective storm systems, one of the most influential, yet unmeasured process of the Earth's atmospheric system," says Luo. "Eventually, these novel measurements will help improve global climate modeling, which will lead to more accurate prediction of future climate change and extreme weather events."

Luo praises CCNY for nurturing his interests, saying the university allows much more freedom to pursue his own research compared to many universities that say, "'Come here and work on this because it is what we're known for.' City College doesn't have those restrictions and that benefits the scientists and the College."

Faculty Awards

Excellence in Teaching, Curricular Innovation and Assessment Award

David Lohman

David Lohman is always looking for ways to improve. Before the pandemic Lohman, who in addition to the Dean's award, recently earned a college wide teaching and pedagogy award. He learned the essentials through taking classes on subjects like how to be a better teacher and how to use open educational resources.

"I wanted to be innovative, especially in the online environment," he says, adding that obviously that became especially handy during the worst of the pandemic.

But Lohman has long been interested in finding a new path. After growing up in Hillsdale, Illinois, a town of just 350 people he went on to school and earned a earned his masters and Ph.D. in Biology from Harvard and then was a postdoctoral fellow at Harvard and the National University of Singapore. He came to City College in 2009 but has also spent much of the last two decades studying in the rainforests of Asia, especially Thailand, becoming fluent in the Thai language and immersing himself in the culture. (There is now a type of wasp from Thailand named after him, *Chimaergathis lohmani*.) So Lohman, who has taken CCNY students to do research in Thailand's rainforests, began seeking new ways to improve his students' education.

One first step was to ask them to tell him more about themselves, even if it was just basic information about career ambitions and how long their commute time was. "I know our students are not me—I'm a white farm boy and there's no one like that in our classrooms," he says, adding that he was surprised to learn that the median commute for his students was ninety minutes each way. ("Zoom was in many ways a blessing for our students," he adds.)

And even though he is teaching biology, Lohman made it his mission to focus on writing and other key skills to help students get jobs in the future. "Often they lack writing skills and job skills-- for my lab I get resumes in comic sans font," he says, explaining that much of the course revolves around things like recognizing the difference between formal written prose and informal conversation, how to use an apostrophe or how to send a formal email in a professional context. "I'm targeting the kinds of mistakes our students tend to make," he says. "They just don't know this stuff that you would absorb if you grew up in a white-collar environment, so I've incorporated developing those skills into my course. You have to learn it somewhere."

When the pandemic hit, Lohman's other innovations included building a series of educational exercises around Pokemon Go because his students couldn't easily get out in nature. "Pokemon has all different species and within different species they vary in size and weight and powers and they have habitat specificity and they mimic many of the biological characteristics of real organisms," he says, explaining that students did a standardized sample, kept data, analyzed statistics and wrote an entire research paper in the required format that they would submit a journal article in. "The students loved it."

Lohman also taught Animal Behavior as a flipped course, where he pre-recorded his lectures and spent all of the class time engaging the students and asking them questions. It required more preparation for him but the students learned more because they had to always be prepared too—he insisted that they write out their notes and rewrite them if they were sloppy, because writing on paper has been proven to improve learning. "My students all said, things like 'You taught me how to learn' or 'I overcame my fear of speaking in class.'"

It's all part of the job for Lohman. "Students could open a book and get the information," he says. "One of my roles as a professor is to see where the students are and explain things so that they are not lost and so that they find it interesting."

Faculty Awards

Broadening Equity and Inclusion Award

George John

"The City College campus feels like the United Nations," says Chemistry professor George John, who is being honored with the Dean's Award for Broadening Equity and Inclusion.

John was raised in India but after getting his Ph.D. there he did his postdoctoral work in the Netherlands and then did research in Japan before coming to America so he brings a world of experience to the idea of diversity.

Growing up in India, John knew he had to be studious to "excel compared to our peers, to find a job and a way out. There are far more jobs here in America."

Most of his peers headed for science or engineering; naturally curious he was drawn to chemistry. He is now recognized for research in the field of functional molecular materials from renewable resources and their potential utility in food materials/energy technologies and materials science. The research in John's laboratory is highly interdisciplinary; it focuses on molecular design of synthetic lipids (biobased), membrane mimics, soft materials, trans fat alternatives, food materials and food chemistry, and organic materials chemistry. His group has successfully developed molecular gel technologies, vegetable oil thickening agents, and trans-fat alternatives, environmentally benign antibacterial paints and oil spill recovery materials; John holds more than a dozen patents on inventions related to value-added chemicals/surfactants from renewable resources and their potential utility in food and biomaterials.

Many of the 90 graduate students and postdoctoral fellows he has trained have been students from underrepresented minorities. "It just happens naturally at City College," John says. "We have a rich group of students and they are excellent."

He says many students, whether they are from India or Africa or Latin America are looking for mentors to talk to, to gain understanding beyond what they are learning in their textbooks. He can share his experiences but is humble about his approach and the impact he has. "I don't know the reason why I was given this award," he says. "It all just comes naturally what I do, so it doesn't feel like something special."

Faculty Awards

Faculty Service Award

Patricia Kenyon

When something needed to get done in her department, Pat Kenyon made sure it happened. Kenyon joined the CCNY faculty in 1994 and has long been an integral part of the Earth and Atmospheric Science Department.

A year after she arrived, the administration proposed eliminating the EAS Department entirely "to her horror." While the Meteorology major was lost, she helped keep the Department and all the faculty positions by pitching in to rework the curriculum to be interdisciplinary, writing the first draft of the curriculum for the Environmental Earth Systems Science Major, now the Department's most popular major.

"It turned out that we were on the forefront of a movement to take a systems science approach to the Earth, and a few years later, we presented a poster paper on our approach, at a session of a national meeting dedicated to this concept," she recalls. "Since then, the Department has been on a continual upward trajectory. Under the guidance of Jeff Steiner, our former Department Chair, and with my help, we set up our collaborative program with the Grove School of Engineering."

Kenyon also played a key role in a revision of the core curriculum for students in the College of Liberal Arts and Science. More recently, she served on the Faculty Council of the College of Liberal Arts & Science. In 2019, she became the Chair of the Division of Science Faculty Council, a role that became critical when the pandemic hit.

Whether she's reading through drafts for the course catalog, writing proposals for curriculum changes, or doing the paperwork and administrative jobs to ensure curriculum revisions, Kenyon was always there. "It may not be flashy, somebody needs to keep track of it and do a proper job," she says. "I'm also proud of my contributions to the rise in the Department's standings and the maintenance of this supportive environment for the undergrads, all while senior faculty like myself have maintained a cooperative and respectful stance toward each other."

Staff Awards

Staff Service Awards

Annietta Brown

Annieta Brown knows how important the staff is for City College students because she used to be one. A native of Kingston, Jamaica, Brown went to York College for undergraduate but came to CCNY for a graduate degree in public administration. "I try to go above and beyond to make sure the students get what they need but I also teach them to take responsibility for stuff they can do," says Brown, who has spent the last fifteen years as the coordinator for the pre-medical studies office. "I try to be kind-hearted and patient and to always have a smile."

Brown implements various workshops for students to help develop skills more efficiently and effectively in reaching their goals when applying to professional school. "I feel great creating an environment where students feel comfortable," she says. "They know I'm always there for them."

The COVID pandemic created more work for Brown. "My job didn't change, it just took more effort to make sure to reach all the students and resolve whatever issues they had, especially since kids often ignore email," she says, adding that during the application cycle she was often up at midnight helping students fix their personal statements. "At times I did feel exhausted but I just tried to ride it out and get everything done. The most challenging aspect of working remotely during the pandemic was lowering the stress level of students."

Staff Awards
Staff Service Awards

Denise Addison

"City College opens the door for students who would not normally have access to a higher degree," says Denise Addison, who works in the Chemistry and Biochemistry department. "That's very satisfying to see."

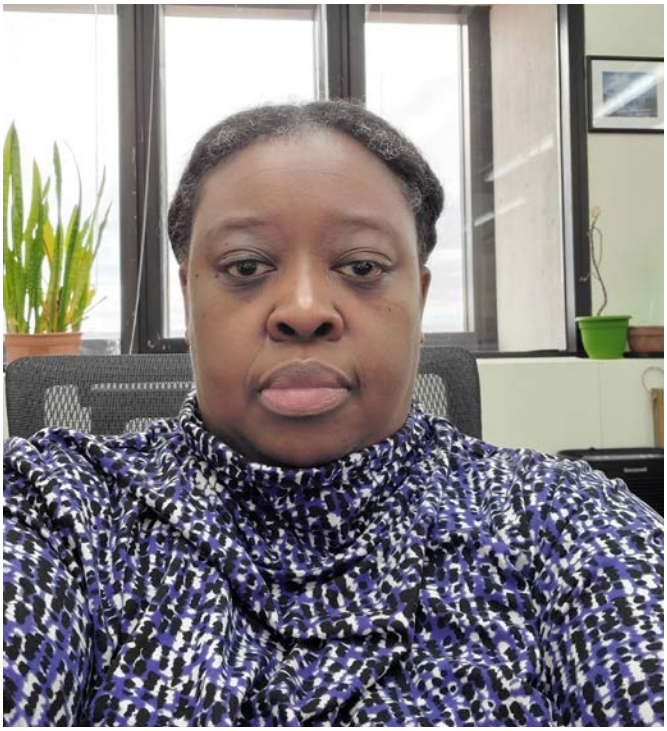
Addison knows whereof she speaks. Her parents had each come to New York to find work and when Addison reached school age they sent her to Virginia to live with her grandmother. But as soon as she finished high school, Addison re-traced her parents' footsteps and returned to New York for college.

However, Addison soon encountered the harsh financial realities of college education in America. "I went to NYU but I had to leave because I couldn't afford it," she says. But a job at CCNY in 1995 brought her to the campus, landing her a place where she still works nearly thirty years later… and the chance to get a college degree at an affordable price.

In the Department of Chemistry and Biochemistry, her role has evolved, expanding her responsibilities beyond clerical work to the hiring of students, budgeting, and scheduling. She even helped create the first website for the department despite having no prior experience in website development. "I was very proud of myself for learning how to create and manage our website because it was something I had never done before," she says. "If you do the same repetitive tasks for too long your brain stops functioning as well. I always like having the opportunity to learn new things so I can grow."

Addison, who has recently been taking history and nutrition courses on Zoom, has become a quintessential New Yorker, going to theater, ballet, and live music events, so the pandemic was a challenge for her.

"Working from home had its conveniences—I was able to get my work done faster because you don't see everyone-- but seeing everyone is also exactly what I missed," she says. "I like seeing people, whether it's interacting with the students or talking shop with my co-workers. I definitely feel better being back in person now."



(L-R): Annietta Brown, Denise Addison

Week of Science

In 2019, the Division of Science introduced it's first Day of Science with the goal of showing the outside world what we offer our students. We started with just one day initially, but it started to expand to multiple days and now we expanded it across a week. This year we had the most diverse range of events ranging from lab demonstrations, to a sustainability fair, AI creating art, photo contest, and more!

The pandemic created many challenges, but we were happy to have our Week of Science on campus, with few hybrid events for those who wanted to get involved from the comfort of their home! The Planetarium show, directed by Dr. James Hedberg, was done in person and virtually. Now that the campus is opening up again, Hedberg hopes to run more Planetarium shows in the future so students can experience it live as he takes you on a tour across the universe.

The Center for Discovery and Innovation (CDI) is a state-of-the art facility where our faculty conduct ground breaking research that pushes the boundaries of scientific knowledge. This year, we took people on a virtual tour of this building streameing it on Facebook and Instagram.

CCNY's Women in Science (WinS) had a panel featuring the movie *Picture a Scientist*. It focused on showing the inequalities women face in pursuing careers in STEM. This event was dedicated to the memory of Professor Myriam Sarachik, who passed away in October 2021, for her pursuit of knowledge, science, and strength for overcoming hardships.

The Sustainability Fair gathered several organizations from in and outside of CUNY with the goal of discussing how we can help solve the problems we face from climate change. We were even joined by Nick Hoefly, owner of Astor Apiaries, who brought his honey business to CCNY! He started off making a few hobby hives on a rooftop and then grew it into a business of more than 50 hives access New York City. He offers bee hive tours, urban beekeeping apprenticeship programs, and other various mentoring services to help create a sustainable and environmentally friendly hive.

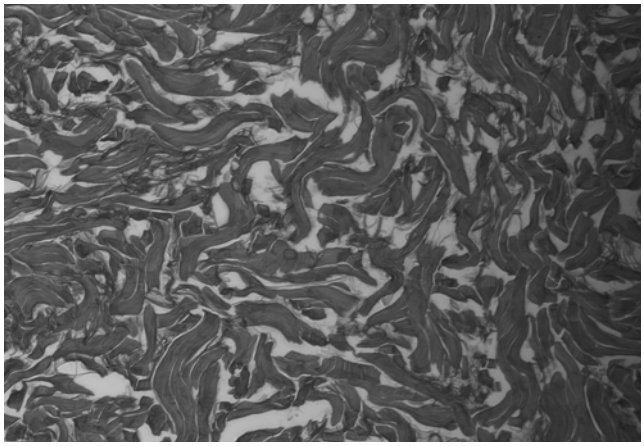
CCNY Physics Alumus, Dr. Arthur Miller, was the inaugural speaker of the new Harry Lustig Memorial Lecture Series. The talk focused on how artificial intelligence (AI) is being utilized to create art with the proposed question of whether a machine can be as creative as a human.

The Happy Hour Trivia Night has always been a crowd favorite, but this year the focus was on intersections of science and other disciplines. Science has influence on numerous other fields such as art, literature, music, and many more. Even if you didn't know the answer to some of these fascinating questions, everyone was able to learn a bit more about how science permeates through other topics.

Dr. Ainissa Ramirez met with our students and faculty to discuss her book, *The Alchemy of Us*. In this book, she highlights the contributions of underrepresented groups in science whose accomplishments haven't been broadcasted as much. This was an exciting opportunity for our future scientists at CCNY to meet with Dr. Ramirez and learn more about those that came before them and offer inspiration to become the next generation of trailblazers.

We also honored a new Distinguished Alumni of the Division of Science. Dr. Jing-Mei Hsu ('95, Biology) led a clinical trial at Weill Cornell Medicine that has a possibility of curing a patient of HIV.

We introduced a brand new "Beauty of Science Gallery" this year for the Week of Science. We had over 130 student submissions of photographs in an intersectional display of science and art! Kayla Peña won the judge's vote with her image of the human skin she took at her REU. Maria Henriquez won the public vote with her photo of Cueva de las Maravillas in the Dominican Republic.



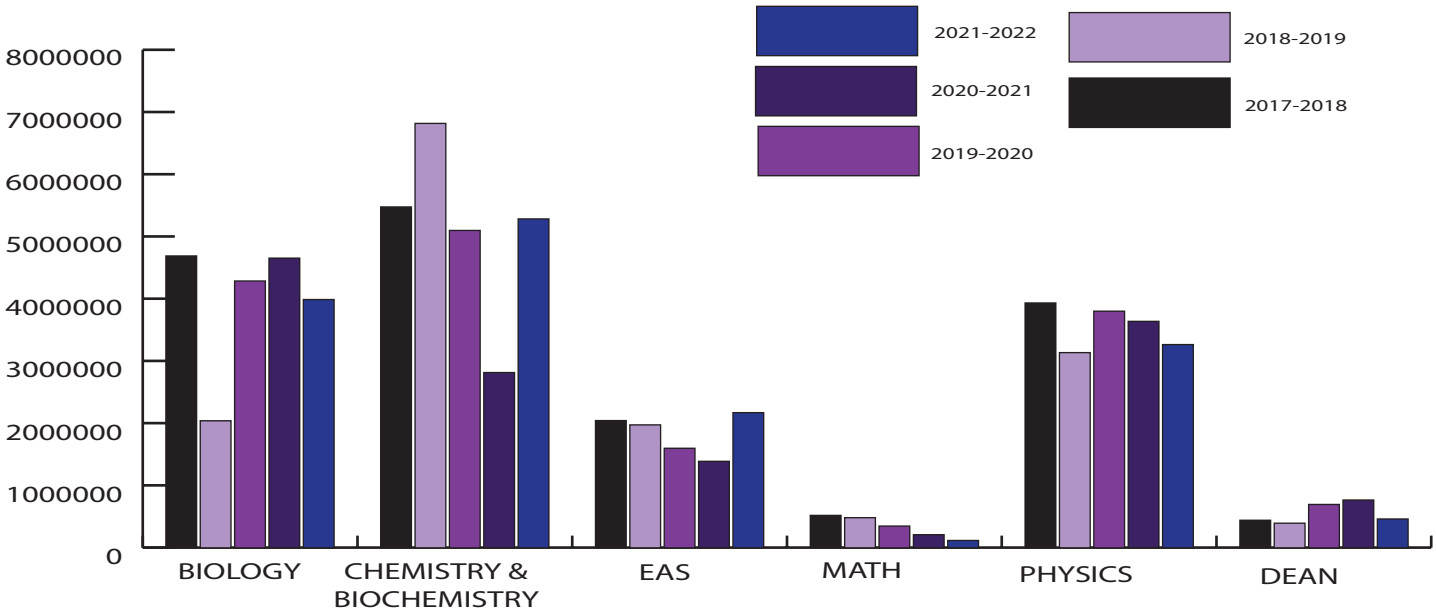
Winning entries of 2022 Science Photo Contest. (L-R): Kayla Peña - sections of human skin stained with picrosirius red. Maria Henriquez - Cueva de las Maravillas, located in the Dominican Republic.

Week of Science

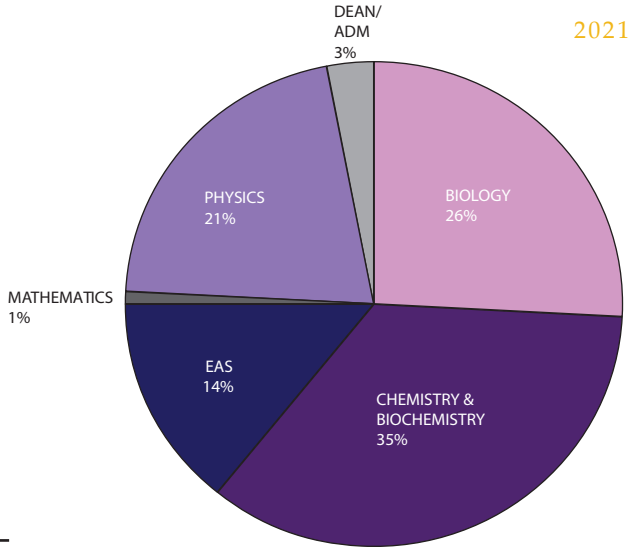
From upper left clockwise, CDI Tour, Book group with author Ainissa Ramirez, Distinguished Alumni dinner with faculty amd honorees, Sustainability Fair, Distinguished Alumna Dr. Jing-Mei Hsu, Harry Lustig Lecture by Arthur I. Miller,

Research

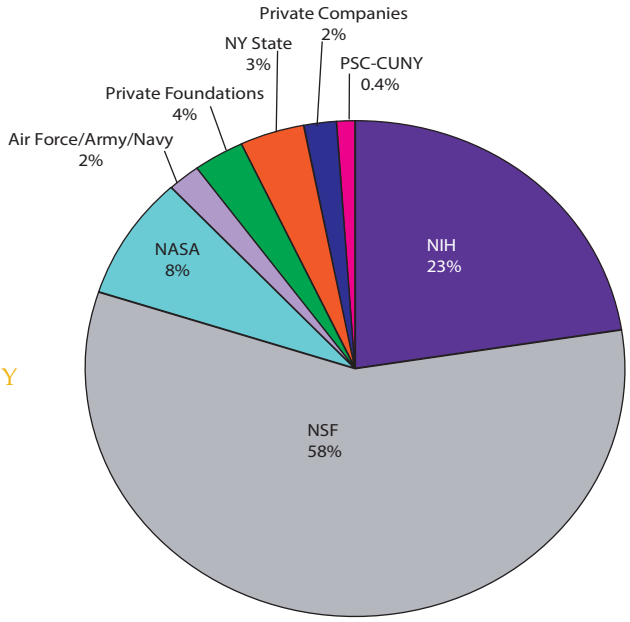
RESEARCH FUNDING BY DEPARTMENT: 2017 -2022



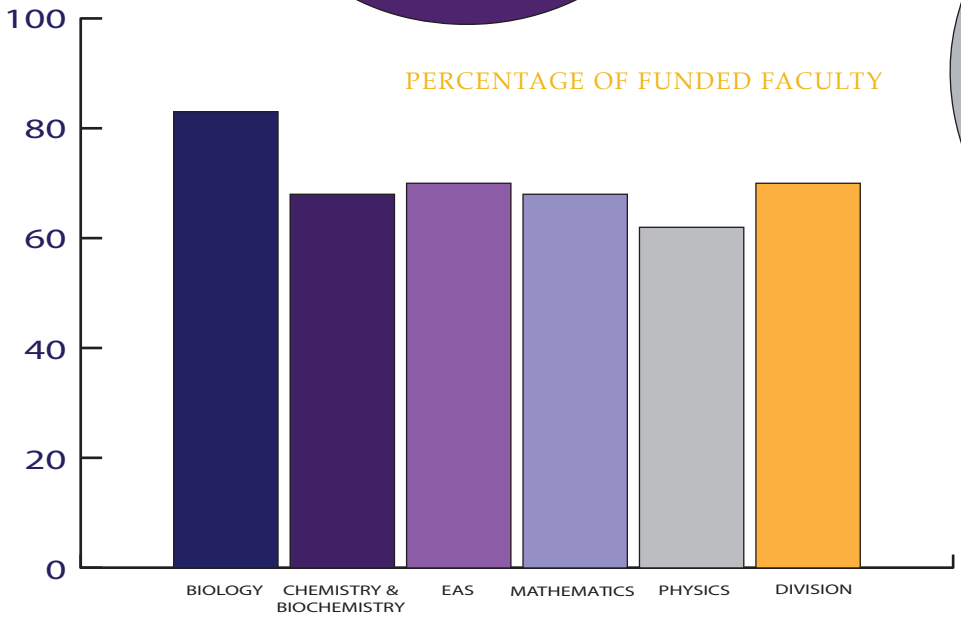
RESEARCH FUNDING BY DEPARTMENT 2021 -2022



EXTERNAL FUNDING SOURCE 2021 - 2022



PERCENTAGE OF FUNDED FACULTY



Research

Division of Science Top Awards

PRINCIPAL INVESTIGATOR	SPONSOR	DEPARTMENT	ANNUAL AWARD AMOUNT
Tamargo, Maria	National Science Foundation NSF	Chemistry & Biochemistry	$984,117
Stark, Ruth	Mathematical & Physical Sciences	Chemistry & Biochemistry	$693,159
Hubbard, Karen	National Cancer Institute	Biology	$516,595
Roth, Millicent	New York State Education Department - NYSED	Dean of Science	$450,000
Stark, Ruth	National Science Foundation NSF	Chemistry & Biochemistry	$277,761
Janakiraman, Anuradha	National Science Foundation NSF	Biology	$249,429
Stark, Ruth	National Institutes of Allergy and Infectious Diseases	Chemistry & Biochemistry	$216,667
Bu, Zimei	National Science Foundation NSF	Chemistry & Biochemistry	$193,509
Gunner, Marilyn	National Science Foundation NSF	Physics	$176,428
Menon, Vinod	National Institutes of Health NIH	Physics	$149,999

Top Awards in each Department

PRINCIPAL INVESTIGATOR	SPONSOR	DEPARTMENT	ANNUAL AWARD AMOUNT
Janakiraman, Anuradha	National Science Foundation NSF	Biology	$997,716
Tamargo, Maria	National Science Foundation NSF	Chemistry & Biochemistry	$4,920,587
Tzortziou, Maria	National Aeronautic & Space Agency	Earth & Atmospheric Sciences	$327,120
Hanson, Jack	Alfred P. Sloan Foundation	Mathematics	$50,000
Gunner, Marilyn	National Institute of Biomedical Imaging and Bioengineering	Physics	$705,102
Roth, Millicent	NYS Office of Higher Education	Dean of Science	$450,000

Retirees

Patricia Kenyon

Patricia Kenyon is retiring, but she's not going anywhere just yet. With two professors on sabbatical in a small department, Kenyon agreed to come back in the fall of 2022 to teach a required course for majors "that no one else knows how to teach."

That commitment has been par for the course for Kenyon, who has always been dedicated to the students she advised for more than 15 years. "I really found being an advisor satisfying," she says, "and I think my working-class background helped me connect to students better than a lot of other professors. I had a lot of very good female role models growing up and I like being a role model for others."

Kenyon was born in Binghamton, New York but she had a brother with intellectual disabilities and then her father died of a heart attack when she was just seven. "We didn't have it easy, but we managed," she recalls.

Kenyon, who began collecting rocks when she was six, got a full scholarship from RPI, where she studied physics and earned her bachelors degree; she got a Ph.D. at Cornell University and spent six years working at Kodak before becoming a professor.

Eventually, Kenyon, whose roots in the Northeast date back to the 1600s, hopes to move back upstate. "I'm interested in the history of New York State but I also may try to get involved with the Ronan Institute for Independent Scholars," she says.

Mark Turner

Mark Turner has a long history with City College going back to 1975 and is a proud native New Yorker. He earned his B.S and M.S in Physics from City College and worked many jobs throughout his life starting at the age of 15. Those who knew Turner would describe him as very sociable and passionate.

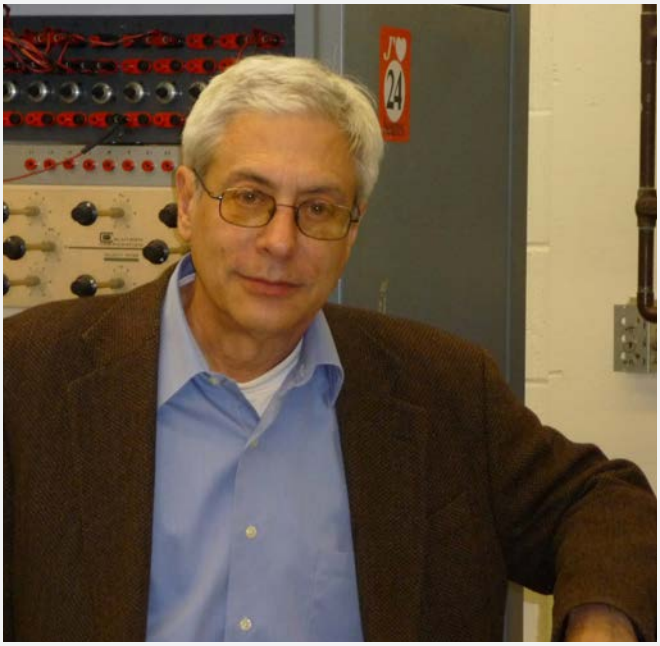
Whether it be mathematics, politics, or social commentary, Turner was always ready to sit down and connect with students and faculty. He started off at City College as adjunct faculty, teaching mathematics, which eventually turned into him overseeing remedial math courses. Soon after, Dr. Ralph Artino created the Artino Lab in the North Academic Center for the Math department and became a mentor for Turner Turner. After his untimely passing, Turner gladly took over the Artino Lab and proudly served as the Director of the Artino Lab for many years to carry on his legacy.

If you ran into Turner in the department, you'd always see him lending a helping hand to the students. Whether you were a math major or not, if there was a course that required some programming, he was always happy to sit down to help.

Turner was also a highly active and proud member of PSC CUNY, CUNY's union. He also was a strong advocate for students and helped uplift them to voice their concerns and create change.

Retirees

John Lombardi



John Lombardi built his first telescope when he was twelve years old, although, the future CCNY Professor of physical chemistry admits, "It was not very good."

Still, that early interest in science pushed him to reach for the stars and he became the first person from his hometown of Stony Point, New York to go to Cornell University.
At first, however, he was totally overwhelmed. "Almost all the kids were well off and had gone to private prep schools," he recalls. "They seemed smarter than me but they were just better prepared. I really struggled that first year and barely passed because I was so stunned by the homework and all the things I was expected to know and how far behind I was."

But his father, who had immigrated from Italy before Lombardi was born, worked in a grocery store and saved money to send Lombardi to college, teaching him the value of hard work. By the time Lombardi graduated he was one of the school's top two students in chemistry. One day, feeling confident, he decided to join the "preppies" he always saw skipping class. "But then I calculated how many hours my father had to work for me to have that one class—it was eight or ten hours-- and so I never missed another class."

His decision to pursue research and get a Ph.D. did not thrill his mother and father. "Like all immigrant parents they thought I should go to medical school-- my brother became a doctor and was the good boy—but I fought like hell with my parents. When I was accepted at Harvard they relented." Lombardi came to teach at City College in 1975 in part because the school was just beginning to admit Black and Latino students in large numbers and he could relate to their backgrounds and wanted to help ensure they got the best education possible. "I felt strongly that I wanted to be part of that," he says, adding that "I've had a great mix of students and I'm very proud of the ones who have also gone on to teach."

In addition to teaching, Lombardi also has produced some memorable research in his career, although he says his most important paper is overlooked. Lombardi discovered a procedure for understanding the hydrogen atom: "When we calculate doing quantum mechanics nobody had done a momentum representation and I discovered how to do that," he says, adding that his solution was "so simple and beautiful I thought it had to be done by someone else so I stashed it away."

But Lombardi's Harvard professor, Nobel winner Dudley Herschbach, thought it was great and wanted to use it in his courses so he urged him to submit it for publication in the Journal of Chemical Education, which is aimed at professors. "I was so proud," Lombardi recalls, but when the publication rejected it he was ready to walk away from the whole idea even though Herschbach urged him to submit it to another publication.

Then Lombardi discovered a 1939 article by two-time Nobel Prize winner Linus Pauling with a theory that purported to do the same thing. "I revered him but I realized he had done it wrong so I wrote a letter," Lombardi recounts. I was apologetic but I said I'd appreciate him taking a look at my idea. He wrote back and said he thought I was right and gave me some suggestions for a revision."

In the end, Lombardi's article was published in the journal Physical Review but he is almost equally proud of the fact that "I have framed letters from two different Nobel Prize winners about my idea."

Retirees

Robert Rockwell

Robert "Rocky" Rockwell came to City College as a postdoctoral scientist seeking to continue his passion and research in ecology and evolutionary biology. Forty-two years later, he is hanging up his coat as a field biologist, and departing the City College community as a prestigious Professor with the Biology Department and CUNY Graduate Center. To all those who knew him either as a professor in the classroom, or as a research mentor in the field and laboratory, Rockwell instilled his love of learning, in every role he took on.

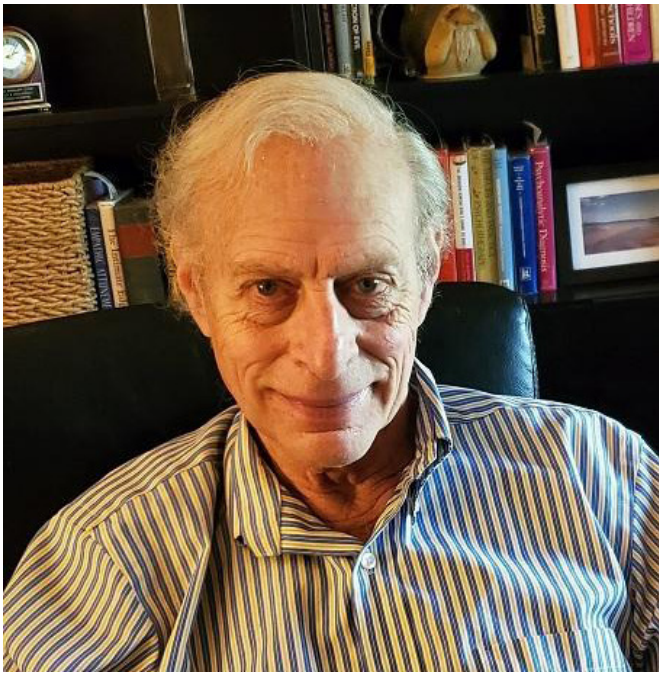
After growing up in the Ozark Mountains, Rockwell moved to Ohio. There he completed most of his education including high school, undergraduate, and Master's studies, before earning his Ph.D. at Queen's University in Kingston, Ontario.

It was during his undergraduate education while studying the evolutionary impacts of snow geese that he "fell in love with people and the wildlife", bringing his interest in evolutionary biology to fruition. When studying this species, he conducted field work with Cree Natives, utilizing snowmobiles to travel across terrain to observe the birds. On their first outing, Rocky asked a Cree elder, Grandfather, for advice. Grandfather told him to set his preconceived notions aside and "act like you don't know anything, sit back and you will learn." It is this wisdom that Rocky carried with him over his years of researching grizzly and polar bears, and teaching the vast array of students at City College and at the American Museum of Natural History with which he had a long affiliation. Rockwell always made sure to listen to nature and to his students. For years, he and his team studied populations of polar bears and lesser snow geese and their effects on the community ecology of the Hudson Bay, population dynamics of migrating waterfowl, how genetic information is exchanged among populations in the wild, and used mathematical and computational methods to assess different species' reproductive success.

As his last years at CCNY have come to an end, some of Rockwell's fondest memories have been attending graduation ceremonies with the sight of proud parents dressed as if they were spit-shined, and having a young observer during class time when a student was unable to find childcare to continue their coursework. A lasting lesson he hopes his students have learned from him is the same that he has learned himself: "Accept that you don't know anything. Sit and watch and you will learn."

Retirees

Mark Steinberg



Mark Steinberg began his academic career at the University of Michigan, where he earned his B.A. in Psychology. After graduating from the University of Michigan he entered the doctoral program in Biology at the University of Pennsylvania, where he received his Ph.D. He then moved to New York where his work on the oncogenic properties of SV40 virus at New York University's School of Medicine led to his appointment as a faculty member in the Department of Pathology. In 1986 he came to CCNY, where he joined the faculty of the Department of Chemistry & Biochemistry. His career has been dedicated to CCNY from that time forward until his retirement in 2022.

Since 1986, Dr. Steinberg has taught in the General Chemistry trenches as well as the majors' environs of Biochemistry 1 and Advanced Biochemistry for senior undergraduates, post-baccalaureates, and Masters students. Whether they needed grounding in fundamentals for Chemistry and Chemical Engineering curricula or rigorous pre-med preparation for those grueling MCAT exams, Professor Steinberg was there to guide and prepare them.

As a researcher, Professor Steinberg applied his expertise in molecular biology, biochemistry, and genetics to studies of neoplastic changes leading to cancer in human epithelial cells, with application to human cancer therapy. A key overarching question for him and his research team: how do oncogenic stimuli — factors that promote tumor formation -- lead to oncogenic gene expression in human epidermal cells? He and his student trainees undertook sustained efforts to answer this question using a unique cell culture system that he designed, garnering prestigious grant support through awards from the National Institutes of Health (NIH) and sharing their findings with the community of scientists in numerous journal publications and conference presentations.

What factors led him down this research path? Steinberg says, "I started as a Psychology major and considered following in my father's footsteps as an M.D., but I found my passion in solving the mysteries of human cells, which can perform miraculous acrobatics but also go radically out of control without warning."

Yet arguably, Mark Steinberg's self-identified proudest achievements have derived from his role as a research mentor. His laboratory has served as a training ground for more than 75 undergraduates over the years, nearly all of them from groups underrepresented in Biochemistry and STEM disciplines more broadly. Starting as an enthusiastic mentor in CCNY's Minority Biomedical Research Scientist (MBRS) program, he became increasingly involved with MBRS as it evolved into the NIH Research Training Initiative for Scientific Enhancement (RISE) program. He ultimately became RISE program director in 2007, a position which he maintained until 2020. During his career he has served in leadership roles in several NIH-sponsored CCNY student research training programs. Dr. Steinberg has also served on Advisory Committees for CCNY's longstanding Maximizing Access to Research Careers (MARC) program for honors undergraduates and the RCMI Research Centers in Minority Institutions program that was designed to build our intellectual and physical infrastructure. He helped to coordinate our campus activities for the CCNY-Memorial Sloan Kettering Cancer Center Partnership on Cancer Disparities and our Bridges to the Baccalaureate programs with Hostos and Queensborough Community Colleges.

During his tenure as RISE director the program brought more than $9 million into the college to prepare undergraduate, Masters, and Ph.D. students for careers in the biomedical sciences. When the program transitioned to G-RISE for Ph.D. students in 2020, he passed the directorship baton to a colleague (Distinguished Professor Ruth Stark) but remained involved as Co-Director and ready to share experience until his retirement in 2022.

Among the things he expects to remember most about his career at CCNY are the innumerable countries of origin encountered among his classroom and research students, the intriguing personalities displayed by his Chemistry and Biochemistry faculty colleagues, and the warm friendships forged with biologists, both in the Marshak Science Building and at our sister community colleges.

"My years of working with students at City College have been filled with gratification. It's been a long journey, but the road doesn't end here. Rather it will continue on – driven by a sense of curiosity and exploration -- to new destinations and experiences. I look forward."

Graduation

2021 - 2022

Benefactors

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