



Institution: **The City College of New York (CCNY)**

DUNS No: **603503991** Cage Code: **4B4G7** NAICS ID(s): **611310** SIC: **8221**

Federal EIN No: **13-6000-565**

Certificates, Registrations, Accreditations: **NCATE, NCTM, NCTE, ACEI, Title III/V**

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Overview

The City University of New York (CUNY), the public university system of NYC and the largest urban public university in the US, reaches a population of nearly 250,000 students across 25 colleges (including 16 HSIs and 1 PBI). CUNY is a major driver of social mobility and innovation in the NYC metropolitan area, with total sponsored program expenditures across the system reaching \$542 million in 2023. The City College of New York (CCNY) is the flagship campus of the CUNY system. We have a long history as an institution with equitable access to education as our central mission; CCNY was established in 1847 by a state-wide referendum as the Free Academy—one of the nation’s earliest public institutions of higher education and its first municipal college. We are one of only 28 R2 Minority Serving Institutions (MSIs) in the country, and the only Carnegie Classification R2 Hispanic Serving Institution (HSI) in New York State, which has no R1 HSIs or MSIs.

CCNY leads all CUNY campuses in funded research efforts and houses a number of research centers and institutes. CCNY’s Grove School of Engineering and Spitzer School of Architecture are the only 4-year public schools of engineering and architecture in the City of New York. In our science, engineering and social science programs, more than 300 undergraduates work alongside senior researchers, supported by our brand-new Office of Experiential Learning. In the last four years CCNY’s research expenditures have increased by 33% to over \$75 million in FY23 as research programs on campus have flourished.

Research Capabilities

CCNY's research strengths span a diversity of fields, from Humanities and Arts to STEM. We highlight highly developed research clusters at CCNY: Quantum research, Cybersecurity, Artificial intelligence, Life sciences, Energy and the environment, Robotics, and Transportation (**QC-ALERT**).

- **Quantum Research:** Quantum Materials, Quantum Algorithms, Topological Photonics, Spin Qubits, Single Source Photon Sources, Nanophotonics
- **Cybersecurity:** Theoretical Computer Science, Cryptography, Network Security, Blockchain, Intrusion detection, Artificial intelligence, Microgrids
- **Artificial Intelligence:** Cloud Enhanced Open Software Defined Mobile Wireless (COSMOS/COSMIC) Testbed, Stochastic Computing-based Host Intrusion Detection, Resilient Cloud Designed Networks (RECN), Noise-Aware Low-Cost Low-Power Baseband DSP Hardware using Stochastic Computing
- **Life Sciences:** Medical/Clinical Sciences, Biomedical Engineering, Biotechnology
- **Energy and the Environment:** Battery Technology, Mobile Power Storage, Uninterrupted Power Supply in Extreme Conditions, Grid Storage Applications, Waste to Energy, Climate Research
- **Robotics:** Cyber-Physical Systems, Autonomous Navigation, 3D Simultaneous Localization and Mapping (SLAM), Real-time and Embedded Computing, Assistive Technology, Multi-Agent Systems, Swarm Robotics
- **Transportation:** Transit-related Research, Infrastructure



Facilities

Core Facilities:

Light Microscopy, Electron Microscopy, X-Ray Diffractometry, Nuclear Magnetic Resonance (NMR), MicroCT and Ultrasound Imaging, Access to NSF-funded CUNY High Performance Computing Center (HPCC)

Research Institutes and Centers:

- Benjamin Levich Institute for Physico-Chemical Hydrodynamics
- CUNY Dominican Institute
- CUNY Energy Institute
- CUNY Institute for Macromolecular Assemblies (MMA)
- CUNY Institute for Transportation Systems (CITS)
- CUNY Institute for Urban Systems (CIUS)
- CUNY Remote Sensing Earth System Institute (CREST)
- Institute for Ultrafast Spectroscopy and Lasers (IUSL)
- Institute for Municipal Waste Research (IMWR)
- Center for Algorithms and Interactive Scientific Software (CAISS)
- Center for Advanced Engineering Design and Development (CAEDD)
- Center for Film, Journalism and Interactive Media (The Documentary Forum)
- Center for Information Networking and Telecommunications (CINT)
- New York Center for Biomedical Engineering (NYCBE)
- Research Center for Minority Institutions (RCMI)
- University Transportation Research Center (UTRC)
- NSF CREST Center for Interface Design and Engineered Assembly of Low Dimensional Systems (IDEALS)
- NOAA Center for Earth System Sciences and Remote Sensing Technology (CESSRST)

Research Infrastructure:

In the last two years, CCNY has established and hired two new research development positions, first a Director of Research Development, followed by an Assistant Director of Proposal Development, that are tasked with building research capacity on campus, in part by developing college-wide initiatives to support successful grant-writing and by facilitating large, interdisciplinary efforts to bring center-level funding to the college.

Past Performance

Research expenditures exceeded \$75 million in FY23. We highlight some examples of major awards:

Sponsor	Program	Amount
DOE	Exascale simulation of thermal-hydraulics phenomena in advanced reactors and validation using high resolution experimental data	\$1.3 million
DOT	University Transportation Centers Program	\$3 million
NASA	NASA-CCNY Center for Advanced Batteries for Space (ABS)	\$5 million
NIH	CCNY-MSKCC Partnership for Cancer Research, Education and Community Outreach	\$6 million
NOAA	Center for Earth System Sciences and Remote Sensing Technologies (CESSRST)	\$30 million
NSF	Smart edge computing in medical applications	\$2 million