
The Connected University

CUNY Master Plan

2016–2020



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Foreword by James B. Milliken, Chancellor, The City University of New York

EVERY FOUR YEARS, The City University of New York provides a Master Plan to the State to assess progress and map out the directions for the future, but this year's Plan comes at a particularly useful, and optimistic, time for CUNY. The University is now embarking on an ambitious and essential path that will set CUNY on a new course of leadership and achievement. While CUNY has always been the nation's largest public urban university, it is time for it to take steps to demonstrate clearly, and in ways that provide tangible returns to the City and State of New York, that it is the most important urban public university system in the country, with local, national and global impact.



James B. Milliken
Chancellor

Our Plan takes on the stubborn challenges of retention and graduation rates, which have plagued CUNY throughout its modern history. It will outline actions that will increase significantly the opportunities for our students to realize their ambitions after graduation, and it will capitalize on the investments made by the State and City by establishing CUNY as a global resource for addressing the significant challenges that face a rapidly urbanizing world. Our Plan advances these important objectives by creating opportunities for and supporting the scholarship and great teaching of our talented faculty and the commitment of our staff, and by managing the University efficiently and wisely.

The Master Plan was prepared through a consultative process and was greatly aided by the parallel work on the University's first Strategic Framework. Together, these important new documents will detail our long-range goals and the actions that will help us achieve them. We will accomplish this by breaking down unnecessary barriers and reducing friction that inhibit effective collaboration within the University and through a new level of collaboration with other institutions, locally and globally, to leverage our substantial capabilities and assets and deliver increased benefits to New York. The process of preparing our strategic vision was inclusive, as we sought the advice of many stakeholders outside the University as well as faculty, students and our college presidents.

We have developed the Master Plan on a foundation that emphasizes the qualities that have always defined CUNY and its special mission, accessibility, affordability and exceptional quality. Our Master Plan includes initiatives that are designed to bring in more students, prepare them for college-level work more effectively, retain more students throughout the educational process and significantly increase the ranks of those who will obtain the key that opens doors to fulfilling careers in the knowledge economy—a diploma. These innovative programs—including a rapid expansion of research-based strategies for student success, significantly increasing our online programs and courses to expand our reach, and fully taking advantage of other

new technologies to improve our effectiveness—will make CUNY a leader in national efforts to increase educational attainment levels.

CUNY enjoys the benefit of having 25 campuses and schools located within one city, and our Master Plan lays out ways to take full advantage of that wonderful natural advantage. We will make it easier for students to navigate between schools as needed to maintain academic momentum and for faculty to embrace opportunities for interdisciplinary, inter-institutional research. The newly connected CUNY will extend and deepen the University's links to New York City, including its schools, its communities, its many research institutions, its vibrant industries and to its adult learners, who will be offered an array of new opportunities to obtain skills to advance their careers. In addition, we will continue to enhance our curriculum so CUNY graduates are competitive with the best in the nation, including significant expansion of literacy in information technology, data analytics and software development. Opportunities for experiential learning and internships will be expanded and given the emphasis they deserve. This marks an important new focus for CUNY in an area where we have underperformed. We also aim to make the University a hub in a global network of universities in major urban centers, providing new learning opportunities for our students, research collaborations for faculty and a means for sharing knowledge on ways of improving conditions in a rapidly urbanizing world.

To ensure that CUNY remains one of the most cost effective university systems in the country, we will continue to focus on creating efficiencies in our operations, allocating every dollar we can to the University's priorities. In addition, CUNY will take ambitious steps to become a leader in attracting private support for our programs. Our plans include significant investments—of resources and talent—in our advancement operations. CUNY simply must be more successful in attracting greater funding from foundations, philanthropies and individuals who share our mission and understand our potential.

This new vision, and our efforts to implement it effectively, will enhance CUNY's reach and impact in our rapidly changing world, benefiting our students today and the people of New York for generations to come.

CUNY's Plans for the Years Ahead

Chapter 1: Introduction

The context in which the City University of New York and other higher education institutions operate continues to experience significant shifts as a result of technological advances, globalization, and other forces that shape the economic, political, and social environment. This chapter describes these changes and in alignment with CUNY's first strategic framework sets the stage for how CUNY will meet the challenges and exploit the opportunities to create a stronger, better connected university that remains true to its original mission.

Chapter 2: CUNY Will Expand its Portals of Opportunity and Access

No matter where a student comes from or hopes to go, CUNY is the higher education portal through which all can travel. In the coming years, the university will focus on creating more on-ramps to a quality college experience for New Yorkers from all walks of life. Key strategies will focus on:

- **Affordability.** Keeping tuition relatively low and increases modest and predictable. Advocating for robust federal and state aid and increasing revenue from granting agencies and philanthropy that will enable more academic and student support services and scholarships and attract and retain a strong professoriate. Investing in programs, such as a new textbook initiative that provides low-cost access to expensive course materials, which will empower students to persist on their path to degree completion despite financial hardship.
- **Diversity.** Connecting more effectively with prospective students from underrepresented groups by providing support services and programming that will lead them to college. Working with the New York City Department of Education to strengthen guidance on admissions and financial aid applications. Launching a new admissions system that will allow a more holistic review of applications. Leveraging new state investments in the SEEK program to increase diverse student participation at senior colleges.
- **College Readiness and Developmental Education.** Building on CUNY's national reputation for research on developmental education and in developing effective interventions such as USIP, CUNY Start and Math Start, expand Math Start enrollment to 4,000 by 2018-19. Improving CUNY's policies on placement into and exit from developmental instruction and aligning developmental math with students' intended majors. Providing better support for math students in both non-credit and credit-bearing course work.
- **Adult Learners.** Increasing access and support for adult students and other students who wish to begin, continue, or complete their higher education by replicating successful models, including part-time programs and college success programs. Examining proficiency standards with an eye toward increased flexibility for students further removed from their earlier educational experiences, and implementing new strategies for prior learning assessment, competency-based credentialing, and non-credit-to-credit pathways. Offering new evening, weekend, and online courses to meet the needs of students who have professional and personal obligations.
- **Graduate Education.** Strengthening the academic profile and appeal of the university's master's programs through curricular review and renewal, greater online presence and more aggressive marketing.



Developing additional professional programs, including Professional Science Master's programs, aligned with current workforce needs, and strengthening support for doctoral education, including support for students interested in careers beyond academia.

- **Online Education.** Launching more fully online degree programs to expand access and appeal to a broader base of students. Implementing more online sections of general education and other high-demand courses to help facilitate degree completion. Providing faculty development and support to aid the creation of more dynamic online course offerings.

Chapter 3: CUNY Will Raise Success Rates

A degree in hand is an essential goal of a college education. CUNY has ambitious new targets to raise its graduation rates so that more students can reap the rewards of increased career options and earning potential. Through new coordinated initiatives to improve support and build academic momentum, CUNY seeks to significantly raise graduation rates in its associate and bachelor's degree programs. Efforts will include:

- **Student Support.** Expanding the nationally acclaimed Accelerated Study in Associate Programs (ASAP) to serve 25,000 students by 2018-19, and adapting it to serve students in four-year programs. Strengthening SEEK and College Discovery, and other student support programs through rigorous assessment and impact evaluation. Identify and expand high impact practices for all students, including special student populations such as students with disabilities, veteran students, international students and students in foster care.



- **Academic Advisement/New Investments.** Adding significant numbers of new academic advisors across CUNY. Upgrading Degree Works, CUNY's degree audit software, and encouraging greater use by students, advisors and faculty. Implementing new state-of-the-art early alert and analytics software to improve the information available to advisors and support staff.
- **Academic Momentum.** Creating incentives to keep students on track toward timely graduation, such as tuition waivers, buy-one-get-one free models, and proven tactics for encouraging full course loads at registration. Facilitating easier access to courses that students need to graduate, through capacity-focused course planning software, improved use of the system-wide ePermit policy, creation of a searchable system-wide course catalog, and expanded online course offerings.
- **Transfer.** Reviewing and refining Pathways, the university-wide general education framework that is easing the transfer of credits between CUNY colleges. Improving articulation agreements and increasing dual and joint degree programs. Implementing a reverse transfer process for granting an en route associate degree across the university so that more students can receive the associate degree they earn after transferring to a baccalaureate program.
- **Financial Support.** Ensuring that eligible students receive tuition assistance they need through state and federal funding. Improving access to information about scholarship opportunities in order to help students find the resources that best match their circumstances. Expanding the availability of support mechanisms, such as Single Stop, to help connect students with financial resources that can help them remain enrolled in college.
- **Student Engagement.** Implementing CUNY's new experiential learning plan to provide channels for gaining meaningful exposure to the workplace as well as marketable skills and professional connections. Implementing use of digital resources by CUNY's college career centers to provide information about job growth areas, internships, and employment opportunities. Improving customer service by integrating administrative systems, training employees to help students troubleshoot more effectively, and expanding availability of supports for weekend and evening students.



- **Workforce Development.** Expanding opportunities for students to gain exposure to the workplace by growing the number of paid internships, expanding the CUNY Service Corps, implementing the new CUNY Arts initiative investing in stronger career center operations, partnering with health care employers and unions to retrain incumbent workers, and creating new stackable credentials linking worker training to degree credentials.

Chapter 4: Academic Quality in the Urban University

CUNY will increase its investments in academic excellence, which hinges on multiple factors, including an outstanding faculty, agile and forward-looking curricula, and support for research, entrepreneurship and creative activity. CUNY intends to thrive in the 21st century by prioritizing the following:

- **An updated curriculum and pedagogy.** Launching new and refreshed academic programs with clear learning outcomes that instill the competencies students need now and address the needs of new and growing industry sectors, particularly in technology fields. Providing more support for active learning strategies and experiential learning in both STEM and non-STEM disciplines. Improving the quality and impact of teacher preparation, especially in subject areas like STEM and computer science where New York City is placing renewed emphasis.
- **Globalization.** Infusing global scholarship, perspectives and competencies into more general education and major offerings and widening the pipeline of language training, study abroad, and cross-cultural learning and collaboration for all students. Enhancing research projects, opportunities for cultural immersion, homestays, internships, and a variety of co-curricular and experiential learning activities. Fostering international partnerships, especially with a network of high-quality universities in other global cities that share CUNY's commitment to urban issues and other worldwide challenges.
- **Digital Literacy.** Emphasizing digital literacy skills by incorporating foundational computer concepts and exposure to data analytics into the curriculum.

- **Urban Expertise.** Bringing the vast talent of CUNY’s faculty to bear on the great challenges facing an increasingly urbanized world, and raising CUNY’s national and international profile as a source of urban expertise. Building upon the university community’s widespread scholarly, research, policy and community-based efforts to advance New York and benefit the public good, through public service initiatives and locally relevant research projects.

- **Faculty Recruitment and Support.** Hiring, promoting, and retaining an outstanding and diverse faculty across the disciplines and professions. Increasing opportunities for faculty to engage in interdisciplinary and collaborative work. Using the newly established Faculty Affairs Advisory Board to address concerns, ideas, and interests among faculty across the university. Providing professional development opportunities to help faculty integrate more technology, authentic research opportunities, and experiential learning into their teaching craft.

- **Research Resources.** Positioning the new Advanced Science Research Center as a catalyst for scientific collaboration and innovation across colleges and disciplines. Connecting greater numbers of undergraduates with authentic research opportunities in STEM, social and behavior sciences, humanities and other disciplines. Building CUNY’s ability to integrate innovation and entrepreneurship. Enhancing the technological capabilities of CUNY’s libraries to support broader use of and support for e-resources, mobile platforms, and the university’s new and growing open access repository, Academic Works.

Chapter 5: CUNY Will Operate Efficiently in the Service of Its Academic Mission

Maintaining CUNY’s signature high-quality, low-cost education on such a large scale requires thoughtful attention to efficiency. In the years ahead, the university will make every effort to be lean and resourceful in all areas of operations and administration, particularly through the following strategies:

- **Fiscal Management.** Eliminating redundancy by making budget systems more standardized, consolidated, and automated while remaining responsive to college needs. Implementing a shared services model to consolidate the colleges’ transactional processing. Investing in fundraising infrastructures at the college and university level to significantly increase private support.

- **Facilities Maintenance and Development.** Completing major capital projects and critical maintenance projects that will enhance the university’s delivery of top-notch academic services and city and state economic revitalization through Governor Andrew Cuomo’s NY-CUNY 2020 Challenge Grant Program. Exploring opportunities for public/private partnerships that leverage university assets and resources. Establishing principles for strategic expansion through collaboration and partnerships in New York City today.

- **Energy Efficiency.** Building upon efforts of Sustainable CUNY to cut energy consumption and related costs at all of the university’s campuses. Playing a leadership role in local and statewide efforts to implement more sustainable practices related to solar power and other areas of energy conservation.

- **Infrastructure Technology.** Expanding technological capabilities that support administrative and academic goals, including video conferencing, data security systems, and internet bandwidth. Enhancing functionality of university-wide tools like CUNYfirst to better manage student administrative, human resources, and financial processes.

- **Performance Management.** Setting university-wide and sector goals aligned with the new strategic framework and Master Plan, establishing appropriate metrics to measure progress, in order to hold the colleges and university accountable, encourage improvement, and recognize excellence related to academic quality, student success, and financial management and administration.



Chapter 1: Introduction

The New York State Legislature, in 1961, created The City University of New York as an institution with a distinctive mission, one that is captured eloquently in section 6201 of the New York State Education Law: CUNY is “an independent system of higher education,” that is “responsive to the needs of its urban setting,” and operates as “an integrated system.” The Legislature described CUNY’s “vital importance as a vehicle for the upward mobility of the disadvantaged in the City of New York,” and specified that the university “will continue to maintain and expand its commitment to academic excellence and to the provision of equal access and opportunity.” That statutory mission was intentionally designed and its value has been proven time and again. It is CUNY’s mandate, and finding new and better ways to fulfill it in the current context remains the top priority.

Since the founding of City College as the Free Academy, in 1847, the ideas inherent in CUNY’s mission have been responsible for transforming the lives of millions, but these ideas cannot be taken for granted. In the second half of the 20th century, while positive strides were made in access and serving a diverse citizenry, the consequences of an undifferentiated system of colleges with developmental instruction necessary at every campus took its toll on CUNY’s quality, reputation and value to its students, the city and the state. In 1999, the Mayor’s Advisory Task Force on CUNY, chaired by the future CUNY Board of Trustees Chair, Benno C. Schmidt, issued a direction-setting report titled *The City University of New York: An Institution Adrift*. The next year the university initiated a comprehensive response to the report. Since then CUNY has successfully charted a course toward renewed academic distinction. The Board of Trustees, with senior university leadership and college presidents, led the difficult and sometimes controversial work of raising standards, increasing quality and at the same time developing successful strategies for student access, mobility and success. In the last 15 years CUNY has seen a steady rise in its value and reputation.

CUNY is now at a pivotal moment. New 21st century challenges have emerged, along with boundless new opportunities. The need for access to affordable, high-quality higher education has only grown more acute, as the labor market places an ever-greater premium on a college degree, and the gulf widens between low-income New Yorkers and those who are better off. At the same time, state financial support for public higher education has plummeted nationwide, and while New York State provides a larger share of public institutions' budgets than many states, in real dollars, support has also declined significantly in recent decades in New York, posing challenges to maintaining CUNY's historic affordability. CUNY is poised to take on these challenges, to affirm the value of higher education, and to reach a new level of consequence in the city, the state, the country and the world. As a key element of our strategy to meet today's challenges, CUNY must leverage our assets to create a more fully integrated university, connecting our colleges, programs and people with one another, as well as with people and institutions outside the university. The Master Plan 2016-2020, which builds on the plans that have preceded it and the progress achieved through those plans, will help chart the course for how CUNY will continue to deliver on its essential promise. This chapter will describe the current environment and its potential impact on CUNY. Subsequent chapters will convey the vision for a new connected urban university, one that will continue to be a beacon of opportunity and a path to success.

2016: THE CONTEXT

Technological advances and globalization—two interrelated forces—have had a profound impact on the way we live, work, and learn today. These forces present both challenges and tremendous opportunity for institutions of higher education across the nation and the world, as they contend with the resulting changes in the economic, political, and social context in which each institution operates. Thomas Friedman, *The New York Times* columnist, put it well:

“Technology is making everything faster and amplifying every voice. And globalization is making the world more interdependent than ever, so we are impacted by others more than ever... These accelerations are raising all the requirements for the American dream—they are raising the skill level and lifelong learning requirements for every good job... they are also raising the bar on leadership, requiring leaders who can navigate this complexity and foster a resilient country.”¹

Technology

Technology extends into nearly every corner of the university. It has created new possibilities for teaching and learning—it allows for personalization and adaptive learning, for online learning and new forms of access, and it produces ever-increasing amounts of data that can contribute to learner and instructor success. Technology affects virtually every aspect of college communications, operations and structures from admissions to advising, from pedagogy and curricula to how research is conducted, disseminated and evaluated. Most important perhaps is that technology has given rise to a generation of students who have never known life without a computer or the internet. CUNY's students live in a digital world—they are digital learners, immersed in the 21st century media culture. They take in the world (and conduct much of their lives) via the filter of computing devices. The university faces a challenge not just to keep pace with these realities, but also to appreciate and anticipate the learning experiences that technology enables.

Globalization

Globalization has been driven by technology, especially in the areas of knowledge transmission, communications, and transportation. Technology facilitates access to information, and knowledge is no longer constrained by physical boundaries. In an increasingly interconnected world educated citizens must understand the implications of globalization, both positive and negative, and must be able to respond effectively to this new reality. Citizens must find the right balance between the benefits and costs of globalization and must understand the policy choices facing their nation, their region, and their communities. It is now a

major responsibility of higher education to examine and reflect upon globalization as a force shaping the world going forward, and to prepare students to thrive in an environment where language skills, cultural awareness, and knowledge of international affairs are essential.

There are a number of other significant national and local developments that affect the university as it prepares its 2016-2020 Master Plan.

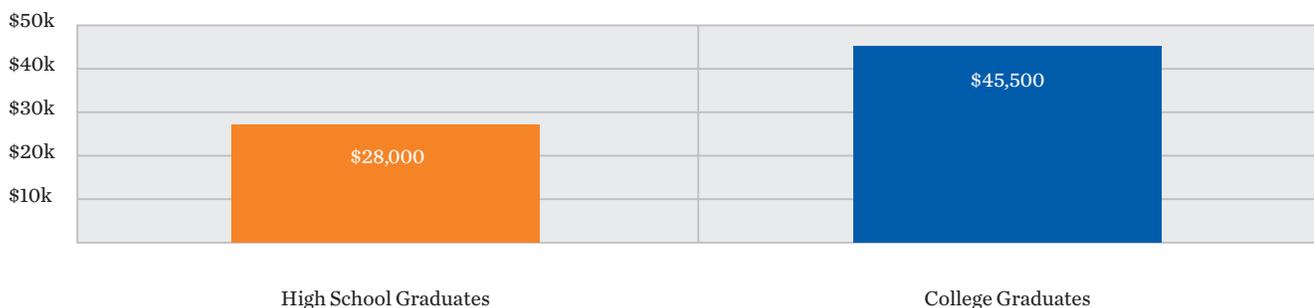
Growing inequality in our city and country

Recent research has documented that income inequality in the United States has increased dramatically over the prior three decades, to levels not seen since the late 1920s. In 2012, the most recent year for which state data are available, New York and Connecticut had the largest gaps—48 percent—between the average incomes of the top one percent and the bottom 99 percent. While this reflects in part the relative concentration of the financial sector in and around the New York metropolitan area, IRS data show that rising inequality affects every state.² New York City is a microcosm of America’s rising economic inequality. According to the Census Bureau’s American Community Survey (September 2014), Manhattan has the biggest gap between rich and poor of any county in the nation: the top five percent of households made 88 times as much money in 2013 as the poorest 20 percent.³ Economic inequality is getting attention from policymakers and the media, as well as in academia, and many are concerned that dramatic inequality of wealth may not be compatible with democracy. Income inequality has many causes at many levels of analysis, but attaining a college degree is one of the best individual-level strategies to boost the fortunes of those without great advantages. Higher education has the potential to combat these disparities and reduce economic inequality, but only if it can be made more widely available and affordable.

The value of a college degree has increased

According to a report issued by the Pew Research Center, “On virtually every measure of economic well-being and career attainment ... young college graduates are outperforming their peers with less education. ... [T]he disparity in economic outcomes between college graduates and those with a high school diploma or less formal schooling has never been greater in the modern era.” College graduates ages 25 to 32 who are working full time earn about \$17,000 more annually than employed young adults holding only a high school diploma. They are also significantly less likely to be unemployed (3.8 percent vs. 12.2 percent).⁴ Furthermore a 2015 report from the Georgetown University Center on Education and the Workforce (CEW) noted that college graduates’ rate of underemployment was 6.2 percent, as opposed to 13 percent for high school graduates.⁵ Another CEW report notes that since 2010 the economy has produced 6.6 million employment opportunities, 2.9 million of which paid more than \$53,000, tended to be full time and provided health insurance and retirement plans, 2.8 million of which went to college graduates.⁶ Despite the post-recession challenges facing today’s college graduates there is little doubt that the “college wage premium,” the extra wages a college graduate can expect to earn over a working life of some 40 years, remains significant.

Figure 1: Annual Earnings of High School Graduates compared to College Graduates



Source: *The Pew Research Center: “The rising cost of not going to college.”*

Urbanization

In today's increasingly interconnected world more than half the population (54 percent) lives in urban areas. According to UN projections, that number will increase to two-thirds of the world population by 2050. Nearly one in eight live in mega-cities of 10 million or more; the number of mega-cities has tripled since 1990.⁷ People across the globe come to cities to find better living and more opportunities—in work, education, health care, and culture. Some are fleeing wars and natural disasters. But without good planning and management urban expansion leads to urban problems—with housing, medical care, sustainability, infrastructure and more—and puts added strains on systems of education, public health, criminal justice, social service delivery, and workforce development.

Figure 2: Worlds' Largest Metropolitan Areas by Population

1. Tokyo, Japan	37,800,000	6. Mumbai, India	20,700,000
2. Delhi, India	25,000,000	7. Osaka, Japan	20,100,000
3. Shanghai, China	23,000,000	8. Beijing, China	19,500,000
4. Mexico City, Mexico	20,800,000	9. New York–Newark, USA	18,600,000
5. São Paulo, Brazil	20,800,000	10. Cairo, Egypt	18,400,000

Source: *United Nations: World Urbanization Prospects, 2014 Revision*

Demographic changes in NYC and those CUNY serves

The vast majority of prospective CUNY students are residents of New York City, so demand for a CUNY education is highly influenced by city population trends, as well as by policies and conditions that influence enrollment in higher education. The city's school-age population (ages 5 to 17) is expected to grow modestly through 2020 with the majority of growth from those who are 65 years and older.⁸ In a city with more than three million adults without a college degree, CUNY will expand opportunities for this demographic, as described in chapter 2, while it also seeks to increase college going among recent high school graduates to help stabilize enrollment in the next several years and grow in the following decade.

In 2014, 75 percent of new freshmen who enrolled at CUNY were graduates of the New York City public schools. The number of students entering New York City high schools has declined slightly since the mid-2000s, but higher retention and graduation rates have resulted in increasing numbers of high school graduates.⁹ The college-going rate for New York City high school graduates has remained stable at just below 70 percent, even as the number of graduates has increased. In September 2015 Mayor Bill de Blasio pledged to further strengthen the positive trends in college attendance by expanding support for both rigorous high school coursework and the college application process over the next several years.¹⁰

New York City's recent population increases have been supported by robust immigration. New York's foreign-born population is over 3 million— a population that would comprise the third largest U.S. city were it to stand on its own—and accounts for 37 percent of the city's total population.¹¹ While New York has been a major immigration hub for over a century, the source of those immigrants has changed radically in recent decades. Just 16 percent of immigrants to New York City in 2011 hailed from Europe, compared to 64 percent in 1970. Latin America is now the largest place of origin, contributing nearly one-third of the city's immigrants, followed closely by Asia (28 percent). As a result of these immigration patterns, the percentage of New Yorkers who identify as Asian or Hispanic has increased rapidly in the last decade. The non-Hispanic Caribbean is the origin of 19 percent of the city's immigrants and Africa accounts for four percent. Because

of the flow of immigrants from across the globe, New York can make a strong claim to be the most diverse major city in the world.¹²

Changing labor market and industries

As New York recovers from the Great Recession some significant industries will continue to be vital.¹³ Healthcare and social assistance occupations will continue to see strong demand as the population expands and ages. The professions - law, accounting, scientific R&D - along with advertising, public relations and other professional services, New York's largest industry sector, is projected to grow substantially; education, the second largest sector, will grow slowly. Some cyclical industries are expected to grow: A surge in high-end residential construction and new hotels supports a favorable outlook for construction. And a continuing increase in tourists and business travelers bodes well for leisure and hospitality. The financial industry, also highly cyclical, appears to be expanding again after severe losses during and immediately after the Recession. Regarding emerging industries, the technology boom is likely to have continued momentum, already evident in internet publishing, web broadcasting, online shopping sites, data science, financial services, cyber-security, and New York offices of large internet companies. Perhaps the most important piece of the story is the change in skill mix as the economy becomes more global and more knowledge-based. As routine jobs are taken over by computers or lower-paid workers overseas, jobs that require higher levels of education and more sophisticated problem-solving and communication skills are in increasingly high demand.

Changes in credentialing

More and more, employers are requiring bachelor's degrees for positions that in the past did not require them. This phenomenon, known as "upcredentialing," is particularly relevant to "middle skills" jobs, those between entry-level positions and high-skilled or upper-level managerial positions. The shift has been particularly dramatic for some of the occupations historically dominated by workers without a college degree—executive secretaries, administrative assistants, construction supervisors, many healthcare and human resource roles, even some jobs in financial operations. In some fields, the job has genuinely become more complex; it may require workers to use advanced technology or to apply more sophisticated analysis



and judgment. And some employers assume that the soft skills college graduates should have developed will make them better prepared to work and better workers. But often it is simply a question of supply and demand, with the BA increasingly used as a filtering mechanism to help employers winnow a large pool of potential applicants. Whatever the reason, many career pathways that formerly served as an early step on a career ladder are becoming closed to those without a bachelor's degree.¹⁴

Research and scholarship have changed

The way in which knowledge is created has changed, not only in science but also in the humanities and social sciences. These changes are a result of increasing knowledge, changing societal concerns, and advances in communication and technology. As knowledge has advanced individual scholarship has become more specialized. This specialization has led to more cross-disciplinary collaboration, often with scholars working in interdisciplinary teams. Advances in communications, especially the internet, have played a powerful role in this transition. Ideas, plans, and data can now be easily shared regardless of distance or political and institutional boundaries. In addition to enabling researchers to share information, the internet provides an opportunity for unlimited dissemination of information at little or no cost. It allows the rapid development of communities of scholars to respond to pressing challenges of the 21st century. And it is forcing the reconsideration of practices and structures that made sense in the pre-digital past.

Declining state support

Declining state support nationwide has affected college affordability and access. States have been cutting support of higher education for over a decade. According to the 2014 State Higher Education Finance Report, despite spending increases in 2013 and 2014 nationally, state support for public higher education has declined 18.9 percent from 2008 pre-recession levels.¹⁵ A report of the American Academy of Arts and Sciences (AAAS) notes that, "Although spending increased slightly in 2013 and again in 2014 these increases are dwarfed by the magnitude of prior cuts, and spending per FTE student in 2014 was nearly 30 percent below its level in 2000, after adjusting for inflation." These reductions are occurring as more students are choosing to attend public colleges (20 percent increase from the 2002-2003 school year to 2011-2012).¹⁶ The AAAS report notes further that, "In New York, the percent change in state educational appropriations per FTE student from 2008 to 2014 is -11.1 percent..."¹⁷ To ensure that CUNY remains broadly accessible, it is imperative that CUNY advocate effectively for increased state and city investment and also find ways to generate new revenue.

CHALLENGES AND OPPORTUNITIES

At a time when educational attainment is more important than ever when there are renewed calls to reduce poverty, wage stagnation, and income inequality when cities are increasingly the focal point of significant social, cultural, and economic activity, and when the entire value proposition of higher education is under scrutiny, the need for access to high-quality affordable higher education has only grown more acute—this is CUNY's time. Throughout its history CUNY has evolved to serve the needs of a changing student body, reflecting advances in knowledge and culture, and alterations in the social and political landscape. Now, in 2016, CUNY is poised for a new level of relevance and impact in the city, state and the world. This Master Plan will describe how CUNY will meet the challenges of this century as it redefines its dual missions of access and excellence.

CUNY's Master Plan is the first fruit of a broader planning process that has unfolded over the past year and is still ongoing. That process began last summer when Chancellor Milliken convened a 20-member strategic planning steering committee composed of CUNY college presidents, faculty, and academic and administrative leaders, as well as the chairperson of the University Student Senate, to advise him on future directions for the university. The planning process has benefited greatly from wide consultation with internal and external stakeholders, input from the broader CUNY community, and from working groups charged

with planning around specific initiatives. The ultimate goal of this process is to develop an overarching strategic framework, including this Master Plan, in which all colleges and schools can locate themselves in a better-connected CUNY that will guide the future growth, development, and impact of the university. As intended, the broad themes of the emerging strategic framework and this Master Plan are closely aligned.

BUILDING ON SUCCESS

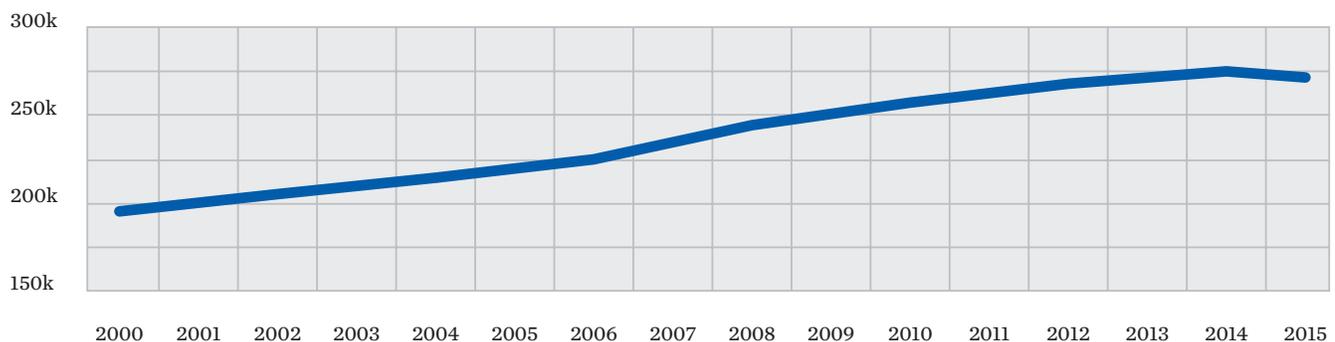
CUNY is the largest urban university in the country. It is situated in the nation’s epicenter of international finance and commerce. For 160 years it has stood out for its ability to meet the educational needs of New York City and State.

Our most important assets are not those conventionally associated with prestige—exclusive admissions, huge endowments, elegant facilities, faculty and student awards—though CUNY has all of those. Rather, it is our ability to serve the great variety of student abilities and interests on a huge scale, bringing our students from where they start to where they aspire, and transforming the trajectories of generations. The university provides educational opportunity in a system that is both integrated and differentiated, a system of 25 colleges and schools, offering programs at all levels of study, from certificate to doctoral.

Since its founding CUNY has been an engine of opportunity for New Yorkers, especially for those who do not begin life with great advantages. It is not difficult to find evidence of CUNY’s success in creating educational opportunity. One can point to the rapid enrollment growth of the past 15 years, during which CUNY’s total headcount rose from 195,000 to 274,000, an increase equivalent to a small city. CUNY’s graduation rates have been rising due to implementation of a number of innovative programs and practices, though clearly greater improvement is needed. Last year, the university awarded almost 50,000 degrees at all levels from certificate to Ph.D. Our students enjoy remarkable benefits from colleges that offer an affordable, high quality education and that are inclusive and open. CUNY is the pathway to educational and economic opportunity and it transforms generations.

There may be no institution doing more about alleviating poverty and addressing income inequality. Almost forty percent of our students come from families with a household income of under \$20,000. CUNY has some of the lowest tuition levels in the country, but even our rates would be out of reach to many of our students if not for exceptionally favorable federal, state and local financial aid programs. As it is, more than 60 percent of full-time CUNY undergraduates have their tuition fully paid for through grants and tax credits. At a time when the nation’s student loan burden tops one trillion dollars, 80 percent of CUNY graduates leave with no debt from the federal student loan program.

Figure 3: Trends in CUNY Headcount Enrollment



CUNY has long been an engine of New York's economy, providing an excellent return on taxpayer's investments. More than four out of five CUNY graduates continue to live and work in New York State, contributing to the economy, the tax base, the social vitality, and quality of life of our state. Graduates who earned their degrees from CUNY over the past 40 years earn \$3 billion a year, about twice what they would have earned if they had held only high school diplomas.

Because CUNY is connected physically by the most extensive mass transit system in the nation, the academic offerings of the university are accessible to students throughout the metropolitan area. The university enrolls students in more than 1,600 academic programs in a wide array of disciplines, making it possible for New Yorkers to pursue almost any course of study somewhere in the university. It is unique in the nation for the breadth of educational options it offers in a unified system within the geographic confines of a single city.

One of our greatest assets is our ability to provide multiple entry points to students of all kinds and with a great diversity of academic interests. Our students come from more than 200 ancestries and speak over 189 languages. That so many succeed in the face of difficult obstacles is a tribute to their drive and ambition. CUNY's senior colleges and the Macaulay Honors College have increasingly attracted some of the best-prepared students from the top high schools in New York City.

No university is better than its faculty. CUNY's faculty earn Fulbrights, MacArthurs, and other competitive grants in record numbers and they are recognized for their excellent teaching as well as their research and creative activity. CUNY faculty possess uncommon interest in promoting the public good and expertise in addressing the challenges of urbanization, economic inequality, community health, sustainability, infrastructure, planning, social welfare and other 21st century concerns. Their talent and commitment are the reasons our colleges are consistently ranked as the best values in the nation. This recognition isn't simply a statement about cost—it is recognition of CUNY's high quality at a reasonable price.



To CUNY, excellence means far more than the accolades bestowed on its faculty or the many prestigious fellowships and awards won by its students—though the CUNY community has garnered more than its fair share of formal recognition. Excellence at CUNY is more broadly conceived in this plan, encompassing the work of dedicated faculty who push the boundaries of knowledge as well as those who are especially adept at teaching our students. It embraces success in its stellar academic programs that impart the knowledge and skills that CUNY students need to adapt to a changing world. It means opportunity for all those who see education as the path to personal and professional fulfillment. This ideal of excellence also includes the many potential forms of service to the city, the state, the country, the world. CUNY is home to scholars with expertise in the urgent issues of today, including growing disparities in access to basic social goods such as health care, safe neighborhoods, and stable employment as well as issues related to the built environment, sustainability, and transportation. CUNY aspires to facilitate and recognize contributions that improve the quality of life here in the urban environment of New York City and more widely in New York State and beyond.

PLANNING MUST ADDRESS KEY ISSUES

Yet despite our progress there is much left undone, new opportunities to seize. Our goal is to build on a strong history of success and on the rich assets to ensure that CUNY is the world's leading urban university serving the world's leading city. The challenges are significant, but the opportunities are even more so.

- CUNY serves the great diversity of New York City, but access could be even wider. Many high school graduates do not enroll in any institution of higher education, and immigration consistently brings new groups to the city. CUNY needs to extend its outreach to all schools and neighborhoods and workplaces so that all potential students—including the more than 3 million adults without a college degree—are aware of what the university can offer. CUNY's recruitment efforts will include expanding opportunity especially for DOE high school graduates, GED students, adult learners, and international students.
- There are still too many students who arrive not ready for college. Addressing this will require deepening our partnership with the NYC schools, which send 60 percent of their college-going graduates to CUNY, and challenging the current thinking about traditional developmental instruction via renowned CUNY-sponsored research on effective pedagogy, policies, and practice to most effectively serve students who arrive at our community colleges unprepared for college work.
- Degree completion is too low and takes too long. Degree completion is ever more crucial to economic opportunity and more essential to reducing inequality. Nationally there are too many students who do not earn their degrees within a reasonable time and CUNY is no exception. In our associate programs, the university's most successful initiatives must be scaled effectively to address developmental needs and to move students toward their degree and to the workforce. Our senior colleges must innovate with policies and practices that are known to speed progress to degrees, including increasing investment in academic support.
- CUNY must be a leader in preparing the workforce for the 21st century. This will require improving STEM education from developmental mathematics to graduate-level study and deepening collaborations with the public schools, where essential preparation in science and math takes place. A much more effective level of engagement is needed between employers and education.

- There are areas in which CUNY needs to revamp its curriculum and pedagogy to better prepare students for the modern world. These need to be aligned with advances in knowledge and practice, labor market needs, and 21st century skills and perspectives. This can only be done in partnership with the private sector and other employers.
- CUNY cannot go it alone. It must leverage its assets by connecting in new ways with other institutions, public and private, including higher education institutions, and develop stronger, richer public-private partnerships. Despite its location in an international hub of commerce, with some of the most exciting businesses in the world, including a growing technology sector, the engagement of faculty and students with business is not where it must be. The university needs many more internship and mentoring opportunities, especially for the many CUNY students who are the first in their families to attend college. Interested faculty must also have more opportunities to work collaboratively with the private sector.
- CUNY should build on its investments in science to facilitate research and knowledge production in a scientific community that is increasingly cross-disciplinary and collaborative. Opportunities in the 21st century include businesses that did not exist in the 20th century, and our faculty and students can be an integral part of the development of new technologies and processes. This requires an institutional culture that nurtures, supports, and rewards faculty who are interested in commercially developing their intellectual property, and an administrative infrastructure that facilitates that development.
- CUNY must more fully exploit technology and data analytics as critical tools for teaching, learning, research and service to the community, and CUNY students and faculty should have the opportunity to be part of the digital era as both consumers and producers. Technology is reorienting higher education in ways that supersede geographical distance. In addition to changes in the way instruction is delivered, technology impacts research production and dissemination of knowledge through the creation of global scholarly communities, the development of digital research repositories, and the establishment of altmetrics to name a few. The vast majority of CUNY students are digital natives, bringing to college a comfort level with technology that far exceeds previous generations. Even so, now more than ever there is a need to strengthen students' digital skills so that they are prepared for the digital demands of careers and 21st century citizenship.
- The university must continually examine what it means to be a global university in the world's leading city. Every major university in 2016 needs to be global in outlook and scope, and few are better positioned than CUNY. As the public university of the greatest city in the world, CUNY has a breadth of expertise that is unparalleled, a reputation that has never been better, and a student body—almost 40 percent born in other countries—that is truly representative of the diverse metropolis it serves. The task is to take advantage of CUNY's and New York's most valuable assets—its location, size, scale, excellence and diversity—and use these to the best possible advantage.
- CUNY should be a university that serves the city broadly, as a leader in research, education and engagement, and that addresses the challenges of a rapidly increasingly urbanized population, attracting partners from other leading urban universities around the world. At the same time, it is imperative to connect more broadly with other urban centers to build on and increase contributions to solving urban challenges.
- CUNY must plan for expansion in a complex and expensive real estate market. Protecting and improving prior investments in infrastructure and institution building will be increasingly important, and the university must also look for opportunities to repurpose space and partner with other institutions to accommodate programmatic and institutional needs.
- CUNY must manage itself more efficiently to preserve its affordability and academic quality. In this context, CUNY should be a leader in raising private funds for public higher education. Although a continued strong public investment is essential and the case for it is compelling, the economics of public higher

education are changing. Private philanthropy has become an increasingly important part of funding capital and programmatic needs, faculty support and student scholarships. CUNY's colleges have seen steady, impressive growth in fundraising, and the colleges as well CUNY collectively must make a compelling case for private support. Additionally, CUNY must continue and expand efforts to set financial and operational policies and procedures that standardize, consolidate and automate processes and systems in ways that will improve efficiency.

The landscape of higher education is changing in ways never before encountered. At the same time, there is greater media scrutiny and more public skepticism about higher education than ever before. Its high costs and resulting student debt are criticized and its value is questioned. In the 21st century, in this new global and digitized world, there are those who question the purpose and relevance of higher education. CUNY is an institution that can bear this scrutiny. We know we have work to do over the next four years. This plan describes that work and makes the case for a serious investment in public higher education.

A MAP FOR THIS PLAN

Over the next four years CUNY will combine its great strengths and assets to better serve New York and New Yorkers. This means looking outward to New York City, New York State and the world, and looking inward to enhance the university's record of student success, financial and administrative restructuring, and achievements in addressing 21st century challenges. To accomplish this, CUNY will work our natural advantages, which set us apart from virtually every university system in the nation: Our extraordinary opportunity for collaboration and connectivity among our sectors and colleges, the public schools, our communities, the private sector, our city and our state. Following this introductory chapter, the plan is divided



into four additional sections. This “map” describes some of the information you will find in those sections.

Chapter 2 will discuss CUNY’s role as a powerful vehicle for educational achievement for all New Yorkers. It includes plans to:

- Expand access for a wide range of potential students from diverse backgrounds and with a variety of academic interests, including through online opportunities
- Strengthen partnerships and expand effective interventions to improve college readiness
- Ensure the smooth transition of “non-traditional” college students such as transfers and adult students
- Keep CUNY affordable

Chapter 3 will discuss programmatic initiatives and student support structures that will raise academic success rates among students and prepare them for work in a globalized, knowledge-based economy. It includes plans to:

- Maximize CUNY’s power as an engine of upward mobility by ensuring timely degree completion and raising graduation rates
- Leverage technology to ensure that students move smoothly through the system
- Expand opportunities for experiential learning, internships, and other channels for students to gain marketable skills and improve job prospects

Chapter 4 will describe how CUNY will strengthen academic quality, including support for faculty to discover, create, and disseminate knowledge across the disciplines, and deliver upon its promise to prepare students from all backgrounds for a changing world. It will include plans to:

- Align curriculum with workforce needs and develop the skills associated with success in the labor market. Grow, diversify and support the professoriate
- Advance and draw on CUNY’s expertise in urban issues
- Enhance CUNY’s service to the city and state
- Ensure excellence in all aspects of research, teaching and learning

Chapter 5 will articulate how CUNY will enhance its operations and business processes in ways that are financially responsible, environmentally sustainable, and in the best interest of its constituencies, the city, and the state. It will include plans to:

- Prioritize the efficient and effective delivery of systems, services, and technologies that are integral to the university’s function
- Invest in capital projects and maintenance efforts that support the colleges’ programmatic offerings
- Align university and college goals with efforts to advance state and city priorities



Chapter 2: CUNY will expand its portals of opportunity and access

Multiple and varied points of access to a college degree have always been a hallmark of CUNY. As an agent of social change and upward mobility, the university has a long tradition of growing human capital and improving the quality of life in New York City and New York State. Since its founding, CUNY has been committed to serving the special needs of its urban constituency, offering a high-quality education to all who seek it. CUNY is the university for the best academically prepared students coming from the city's most competitive high schools, for students struggling to develop their basic skills, and for anyone at any point along this continuum. CUNY is for students from families who have lived in New York for generations, and for recent arrivals from other cities, states, or countries. It is the place for those who started college but did not finish, and for those seeking additional higher education credentials. CUNY is for recent high school graduates, and also for working adults, job seekers, and career changers. It is the place for students whose family tradition has always included higher education as well as for those who are the first in their families to enroll in college. There is a place at CUNY for aspiring entrepreneurs, doctors, nurses, social workers, engineers, architects, film directors, accountants, journalists, public health leaders, economists, teachers, lawyers, novelists, dental hygienists, criminologists, medical technicians, musicians, equity traders and more. CUNY also offers opportunity for others who will pioneer careers we cannot yet imagine.

With twenty-four colleges and professional schools spread across the five boroughs of New York City, every city resident is within a few subway or bus stops of a CUNY college, and its growing online presence means that a high-quality, CUNY education is within reach for all—not just those who reside in the New York metropolitan area, but for people anywhere in the world. CUNY will uphold and advance this commitment to access. Over the next four years and beyond, CUNY will invest in the most effective strategies to further expand educational opportunity and eliminate barriers to access, ensuring that no matter where one comes from or where one hopes to go, CUNY is the higher education portal through which all can travel.



CUNY Student Profile

- CUNY's students reflect the remarkable diversity of New York City
- CUNY enrolls more than 245,000 undergraduates.
- Undergraduate students are:
 - Asian: 19.8%
 - Black: 26.1%
 - Hispanic: 30.7%
 - White: 23.1%
- Students identify with 216 different ancestries.
- 37% were born outside of the U.S. mainland.
- They speak 189 different languages. 43% report a native language other than English.
- CUNY is a powerful gateway to the middle class for the city's residents.
- 75% of CUNY freshmen are graduates of NYC public high schools.
- 42% are in the first generation of their family to go to college.
- 58% receive federal Pell grants for low-income students.
- CUNY serves large numbers of both traditional and non-traditional college students:
 - 27% of undergraduates are over the age of 25.
 - 30% work at least 20 hours a week for pay.

DIVERSITY

With its home in the nation's largest, most diverse city, CUNY recruits and attracts a student body that is extraordinarily diverse by any measure. CUNY rivals any higher education system in the mix of students it serves, in language, culture, race, ethnicity, geography, family income, age, or educational background. While many private colleges boast of their legacy students—those who are the second, third, and fourth generations in their family to attend that college—CUNY is proud to note that 42 percent of its students are in the first generation of their families to attend college.

Maintaining and growing this diverse student population is an essential component of CUNY's ability to ensure that New York has a workforce that will meet the complex and evolving needs of the city and the state. Over the next four years and beyond, the university will intensify efforts to recruit undergraduate and graduate students from all backgrounds and all parts of the city. In addition to providing opportunity to the widest possible range of students, CUNY's efforts will ensure that the experience of all students is enriched through exposure to a diverse points of view, experiences, beliefs, and opinions in a climate that encourages understanding and respect.

To ensure greater diversity, particularly at its most selective senior colleges, CUNY will deepen its partnerships with schools and community-based organizations that serve large populations of low-income, first-generation, and/or students of color. A report from the Research Alliance for New York City Schools suggests that a substantial number of New York City public high school graduates, including many who have relatively strong academic records, do not enroll in higher education at CUNY or elsewhere. Cost is a factor, as is the ability of students to navigate the college search, application, and financial aid processes. In addition, many students who are eligible for college simply don't see themselves as "college material."¹⁸ To help deal with these issues, and to begin to create a stronger college-going culture in the city, CUNY will work with the New York City Department of Education (NYCDOE) to enhance students' college search and application experiences and to address Mayor de Blasio's recently announced College Access for All initiative, a component of his Excellence and Equity agenda. As part of the initiative, CUNY colleges will host high school and middle school students for college visits, assist students in completing a CUNY application, and pair college students with high school students for a mentoring program. The university will also collaborate with the DOE to ensure that students who want to attend college are aware of the opportunity to enroll at CUNY and do not fall out of the pipeline. And to help alleviate concerns about cost, CUNY will support students in the completion of the FAFSA, the application for financial aid.

CUNY will leverage state investments in SEEK—the State-supported opportunity program at CUNY's senior colleges—to expand recruitment and support of educationally and economically disadvantaged students, predominantly students of color. In addition, CUNY will synergize the efforts of enrollment management and programs that serve underrepresented students including the Black Male Initiative (BMI), Accelerated Study in the Associate Programs (ASAP), Opportunity Programs (SEEK and College Discovery), the Foster Care Collaborative, CUNY Collaborative Programs, the Young Men's Initiative, and others.

CUNY will also strive for greater geographic diversity. This will include a stronger effort to recruit international students by cultivating ties with foreign institutions and professional organizations focused on international education, such as STUDY NY, NASFA: Association of International Educators, and NACAC (National Association for College Admissions Counseling), and taking steps to remove barriers that may impede applications or enrollments among international students. CUNY is working to establish a process for students with education outside of the United States to obtain transfer credit evaluations from credit evaluation organizations. This will significantly reduce the amount of time it takes for CUNY to provide admissions decisions to students with foreign credentials. Efforts in this area are discussed further in the section on "International Enrollment."

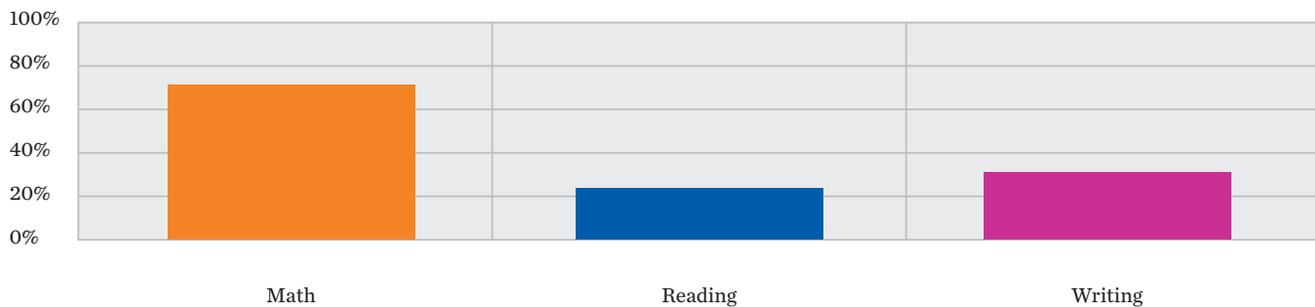
Further, CUNY will introduce a new admission system (described below) that will help the university and individual colleges to identify and admit promising students whose standardized test scores alone might not qualify them for admission. This more holistic approach is expected to improve CUNY’s ability to identify students of all backgrounds who can succeed in their collegiate studies.¹⁹

COLLEGE READINESS AND DEVELOPMENTAL EDUCATION

Although the NYCDOE has raised its graduation rates substantially since the turn of the century, many new graduates are not yet ready for the academic rigor of college courses. Fewer than 50 percent of the city’s class of 2015 graduates met the NYCDOE’s College Readiness standard (which is based on CUNY’s standard), and CUNY enrolls a disproportionate share of students who do not meet this benchmark. While all students who have been able to attain a high school degree or a GED have a place at CUNY, true access is impeded by the inability of many of them to begin taking credit-bearing courses.

To gain access to the credit-bearing curriculum students admitted to an undergraduate college are required to demonstrate proficiency in reading, writing, and mathematics. Students who are not proficient in these areas at the time of admission—based on SAT, Regents, or CUNY placement exam scores—are assigned to developmental instruction. Close to 80 percent of freshmen entering associate programs at CUNY do not meet the basic skills standards in one or more areas, most frequently, in math. Nearly three quarters of freshmen entering a CUNY associate degree program are placed into a developmental math course; 23 percent are placed into developmental reading, and 33 percent in developmental writing. CUNY does not offer developmental courses in its bachelor’s programs.

Figure 4: Percentage of Freshmen in Associate Programs Assigned to Remediation, by Subject Fall 2015



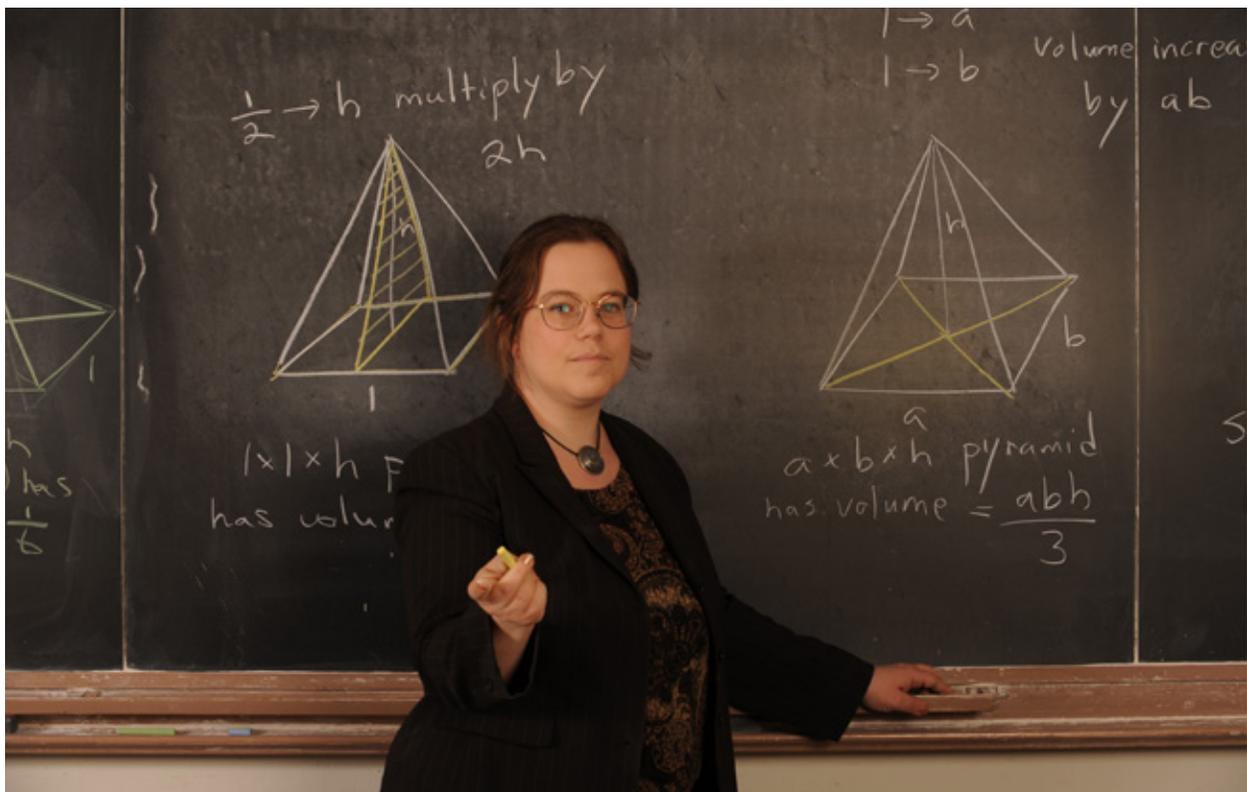
CUNY colleges offer a number of programs to improve basic skills. Most developmental instruction takes place in sequences of semester-long non-credit courses in reading, writing and math. This traditional form of developmental instruction is given at CUNY’s community colleges and the three senior colleges with associate programs (Medgar Evers College, New York City College of Technology, and the College of Staten Island). Developmental education is also provided in a number other formats, including free summer and winter intensive developmental programs offered at all of the undergraduate colleges (see the USIP section below) as well as innovative new programs—CUNY Start and Math Start (discussed in detail below). A considerable number of students have successfully passed through the traditional developmental sequences and have gone on to earn a college degree. Too many other students, however, have been temporarily or permanently derailed because they were not able to achieve basic skills proficiency. Associate degree-seeking students needing developmental education have substantially lower graduation rates than those who need no developmental courses upon entry—between about 10 and 20 percentage points lower depending upon the breadth of developmental need. For the 2008 first-time freshman cohort alone, nearly 10,000 students who needed developmental instruction in at least one basic skills area still had not earned a CUNY

degree after six years. Further, if students use financial aid to pay for developmental courses, which do not count toward the degree, they risk using up their financial aid before completing all degree requirements, forcing them to find other means to pay for some of their college education (by working more or taking out loans) or worse, to drop out.

Reform and Innovation in Developmental Education

Improving the effectiveness and rigor of developmental instruction and thereby eliminating some barriers to degree completion will be a major area of focus in the years ahead. CUNY has a long history of innovative practice and continues to engage in research that is leading to significant pedagogical and curricular improvements. Outcomes from these educational innovations in developmental instruction have garnered national attention and adoption of CUNY-created programs across the nation. Despite the promise of these programs, however, CUNY recognizes the need for broader reform. In 2015, the University Provost convened task force to conduct a comprehensive review of relevant research as well as developmental practices across the university and best practices nationally. The task force has issued recommendations addressing a range of policies and procedures related to developmental education, including placement into developmental instruction, exit from it, and instructional options available to students. These recommendations will provide the framework for many important changes in academic policy beginning next year.

One longstanding successful alternative to traditional course-based developmental instruction is the University Skills Immersion Program (USIP), which has been providing tuition-free developmental education in reading, writing, and mathematics during the summer and winter sessions since the mid-1980s. USIP is available at every CUNY undergraduate college. Unlike semester-long developmental courses, USIP allows students to meet their developmental needs without using their own financial resources or valuable financial aid. Recent analyses indicate that USIP yields better student outcomes than traditional developmental instruction, especially for math. Two-thirds of students who participated in an elementary algebra

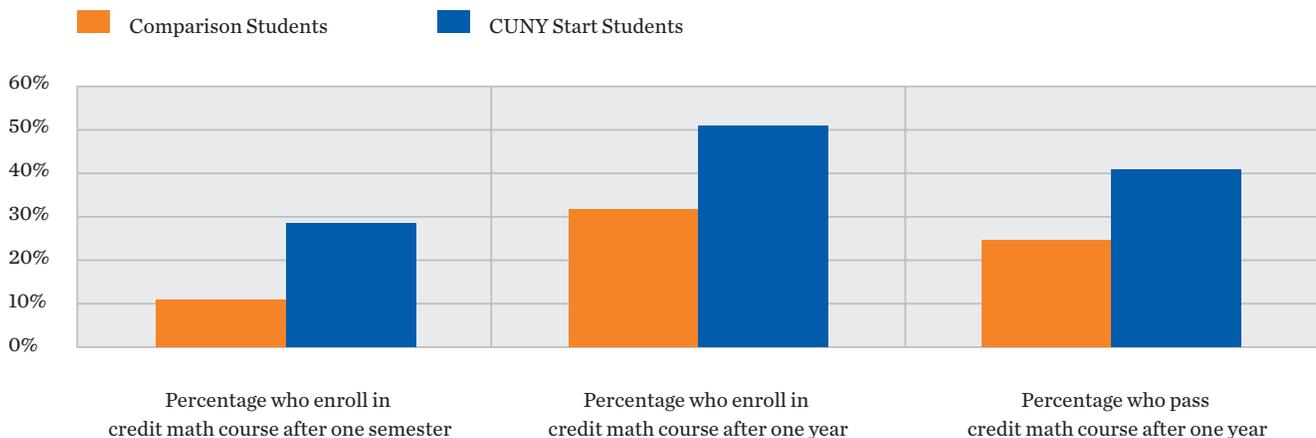


intervention through USIP in summer 2014 passed the Common Elementary Algebra Final Examination (CEAFE), compared to only 38 percent of students who took traditional elementary algebra developmental courses in the spring of that year. Further, national research has shown that students who participated in a “summer bridge” program—workshops and classes offered during the summer and designed to boost college readiness and ease the transition from high school to college—were more likely to enroll in subsequent higher education, earned more credits, and had a higher cumulative GPA than their counterparts who did not enroll in summer developmental courses.²⁰ The university will continue to support the expansion of USIP programs, encouraging CUNY colleges to offer more space in their summer and winter programs and to aggressively recruit students.

In 2009-2010, CUNY piloted a new program, CUNY Start, designed to serve students with significant developmental needs in reading, writing, and math. CUNY Start students defer matriculation for one semester to receive intensive instruction and support for a modest fee of \$75. The program has accelerated student progress out of developmental education while fully preserving financial aid for credit course work. CUNY Start, with its carefully designed curriculum and instructional model, is drawing national attention for its outstanding outcomes. By the end of the one-semester program, just over half the full-time CUNY Start students (51 percent) who completed the program (the average program completion rate is approaching 90 percent) were fully skills proficient and eligible to register for a full credit-bearing course load, and 30 percent had only one developmental need to address upon matriculation. Students enrolling part-time in CUNY Start showed similar success rates.

Results from rigorous in-house evaluation provide further evidence of the effectiveness of this model. When CUNY Start students matriculated into their degree programs, they took and earned more credits, had higher GPAs, and showed stronger retention than similar non-CUNY Start participants. CUNY Start students enrolled in credit-bearing math courses more quickly and at higher rates than a comparison group. One semester after participation in CUNY Start, nearly three times as many students as in a comparison group taking a traditional developmental math course were enrolled in a credit math course (29.3 percent compared to 10.5 percent). After one year, the gap grew even wider (50.5 percent of the CUNY Start cohort and 32.1 percent of the comparison group). Further, CUNY Start students were more successful in these math courses. One year out, 40.6 percent of the CUNY Start cohort had passed a credit-bearing math course while only a quarter of the comparison group had done so.

Figure 5: Outcomes for CUNY Start Students and Comparison Group





Considering that more than two-thirds of CUNY Start students entered needing developmental instruction in all three areas (the remaining third have two developmental needs), these results were particularly encouraging, so CUNY moved ahead quickly to scale up from 150 students in the pilot, to 3,600 students enrolled in 2015-2016. To date, more than 13,000 students have been served by CUNY Start.

Encouraged by the success of CUNY Start, the university created an intensive eight-week math intervention modeled on the semester-long CUNY Start math course to help eliminate or reduce developmental math needs prior to matriculation for admitted associate degree-seeking students. This program, now known as Math Start, was piloted at BMCC in 2014 with 159 students who had not demonstrated proficiency in either pre-algebra or elementary algebra. It was expanded to two additional community colleges (Hostos CC, and Guttman CC) in summer 2015 and was supported with funding from the Petrie Foundation. Nearly all of the students completed the eight-week summer program (97 percent), and 92 percent of the completers were fully proficient in math (i.e., passed the CEAFE) by the end of it. The city recently funded a major expansion of the promising Math Start model to serve a total of 7,000 students over the next four years (1,000 students in 2016–2017, 2,000 students in 2017–2018, and 4,000 students in 2018–2019). The program will also be offered in eight-week cycles year round to serve both fall and spring entrants.

As noted above, to further advance CUNY's developmental education reform agenda, a developmental education task force was formed in 2015 to conduct a comprehensive review of the university's policies related to placement of students into and exit from developmental education, and other issues such as the content and format of developmental instruction and academic support. The review of placement criteria comes at an appropriate time, as the tools that the university has long used to determine which students are ready for college level work—the New York State Regents Examinations, the SAT, and placement tests—are being redesigned or abandoned altogether. New Regents examinations in English language arts and mathematics are oriented to the Common Core Learning Standards (CCLS), and the College Board has redesigned the SAT with the same purpose in mind. Meanwhile, the ACT Corporation will no longer offer the Compass placement tests on which CUNY has relied for more than a decade to assess college readiness in reading

and math. These changes challenge CUNY to redefine readiness using the new tools, but at the same time offer a rare opportunity to refine placement policies to take into account more information, such as performance in high school, to determine students' level of college readiness. Following the recommendation of the task force, CUNY will use the revised instruments and additional information to minimize two types of placement error: The placement of students into developmental courses who could have succeeded in credit courses and the placement of students into credit courses who are not prepared for success.

In addition to placement criteria, the task force also reviewed CUNY's practice of relying on high-stakes tests to determine when students who have been placed into developmental instruction are ready to exit from it. The task force affirmed the value of common exit tests in order to insure that students achieve a specified level of mastery of basic skills but recommended that test scores be combined with indicators of class performance to assess the students' ability to undertake credit-bearing course work. This change aligns CUNY with best practices nationally.

Finally, the task force focused its attention on the requirement that all students who place into developmental instruction for mathematics take and pass elementary algebra as a prerequisite for credit course work in math. Current practice requires developmental math students to enroll in elementary algebra and pass the CUNY Elementary Algebra Final Examination (CEAFE) in order to exit. The task force reviewed research on the effectiveness of rigorous alternative pathways through developmental math for students pursuing non-algebra-intensive majors. Examples of such alternatives include the following:

- BMCC piloted and then expanded its offering of Quantway, a developmental quantitative reasoning course developed by the Carnegie Foundation for the Advancement of Teaching as an alternative to elementary algebra for non-algebra-intensive majors. The course pass rate was substantially higher than for elementary algebra: 59 percent compared with 36 percent. Quantway students were more likely to pass the next math course than those who took the traditional elementary algebra course.



- LaGuardia Community College piloted a version of another Carnegie Foundation course called Statway, a one-semester mainstreamed (credit-bearing) introductory statistics course for non-algebra-intensive majors geared to students who are not proficient in math. More than three-quarters of the Statway students passed that course; 44 percent of the students enrolled in traditional developmental math (elementary algebra) passed their course.
- From the start, Guttman Community College, CUNY's newest community college, which opened in fall 2012, employed an alternative model for math. Guttman students who are assessed as needing developmental instruction in mathematics take a "stretched" two-semester college-level statistics course with support (a co-requisite model) that covers the same material as the one-semester statistics course taken by the college's stronger math students. Guttman's three-year graduation rate of 49 percent may provide some evidence that this model facilitates degree completion.

As the result of its deliberations, the task force recommended that CUNY offer new options to all students planning to major in a program for which college algebra is not a pre-requisite. These alternatives might include developmental course work designed to prepare students for credit courses in quantitative reasoning or statistics.

Another option is direct placement into such courses with extra academic support. CUNY's role as a leader in developmental education reform stems in part from its involvement in large-scale random-assignment studies to assess the effectiveness of innovative developmental education strategies. In 2013, with funding from the Spencer Foundation, CUNY undertook a random-assignment experiment in mathematics mainstreaming for which approximately 900 students at three CUNY community colleges (BMCC, Hostos CC, and LaGuardia CC) assessed as needing developmental education in math were randomly assigned into traditional developmental elementary algebra, traditional developmental elementary algebra with supplemental instruction (weekly workshops), or college-level introductory statistics with supplemental instruction (the mainstreaming condition). Fifty-six percent of the mainstreamed students passed the statistics course, a significantly higher pass rate than those for either of the control conditions—elementary algebra (39 percent) and elementary algebra with support (45 percent). Further, one year after the end of the experiment, students who had taken the mainstreamed statistics course had accumulated significantly more college credits than students in the other two groups.

Mainstreaming students with developmental math needs into statistics courses, or into programs such as Quantway and Statway, is a promising alternative to traditional developmental math courses for students entering programs that do not require a substantial amount of algebra. This change is consistent with best practices and widely accepted research nationally. Over the next four years the university will work with colleges on mainstreaming options.

In other research ventures, CUNY is exploring the potential for mindset interventions to raise students' scores on the tests used to place students into developmental courses, with the hope that these interventions might help students avoid developmental education altogether. A growing body of research suggests that small and inexpensive psychological interventions can have a measurable positive impact on students' academic success. For example, in a mindset experiment at University of Texas, Austin, an online intervention delivered to all incoming students as part of freshman orientation resulted in a significant increase in the proportion of disadvantaged students who completed 12 or more credits in the first term, compared to similar students who did not receive the intervention.²¹ In 2015 CUNY received funding from New York City to test mindset exercises in the coming year for students preparing to sit for the university's placement exams. Just before beginning the test, students will be given a booklet of information and exercises designed to help them set expectations appropriately and develop a measure of psychological resilience as they sit for the exam. Results from this research are expected in the coming months and CUNY anticipates scaling up this relatively inexpensive intervention should it prove effective.

CUNY and the New York City Department of Education

Through a range of partnerships with the NYCDOE, CUNY aims to help prepare the next generation of New Yorkers for college. In addition to the efforts described below, CUNY and the NYCDOE have made great progress in data sharing, enabling analysis of students' academic skills and achievement, college readiness, workforce readiness and other key program outcomes—all information that helps to orient the work of both systems.

- The CUNY-NYCDOE Steering Committee develops strategies to increase college readiness and success rates in New York City by reviewing data and providing guidance to address policy issues and create student support programs.
- Graduate NYC aims to double the number of CUNY college graduates from NYCDOE high schools by 2020 through collaborative work with a range of city agencies and community-based organizations.

- College Now helps students at more than 425 New York City high schools prepare for college through college prep courses and workshops, summer programs, and free access to college courses.
- The Early College Initiative offers students at 17 specialized Early College high schools, each partnered with a CUNY undergraduate college, the opportunity to follow an integrated curriculum and graduate from high school having earned one to two years of transferable college credit—at no cost to the students or their families.
- LINCT to Success (Lessons in Navigating College Transition) and College Focus prepare high school students for success in college and in particular for the CUNY Assessment Tests used to place incoming students in developmental or credit-bearing college courses.



P-TECH: A Ticket to the Middle Class

P-TECH (Pathways in Technology Early College High School) is a six-year school that combined the early college model with emphasis on career preparation and mentoring. When President Barack Obama visited the school, he called P-Tech “a ticket to the middle class” and in his 2013 State of the Union address, said, “We

need to give every American student opportunities like this.” Since then, CUNY and NYCDOE have launched six additional 9-14 schools in partnership with leading employers such as New York Presbyterian Hospitals, Con Edison, SAP, and Microsoft.

CUNY and New York City Department of Education Collaboration

While there are many portals through which students can enter CUNY, the most common is as a graduate of one of the city’s public high schools. Sixty percent of all college-going graduates of NYCDOE high schools attend a CUNY college, and graduates of NYCDOE high schools are the number one source of first-time students at CUNY. No other urban area in the country has the level of inter-connectedness that these two systems share. CUNY and the NYCDOE have collaborated closely, especially over the last decade, to create a coordinated Pre-K-16 system that supports the education goals of the city and state, and to improve the college readiness of high school graduates.

The formal structures of collaboration between these two large education systems include support for better integrated curriculum, improved teaching and learning, enhanced teacher and para-professional development, clearer communication between the two systems, and data sharing and collaborative research to support policy analysis and decision-making for CUNY and for the NYCDOE. The structures that support these collaborations include the CUNY-NYCDOE Steering Committee and Graduate NYC, in addition to organized efforts around data sharing and research.

The CUNY-NYCDOE partnership includes a suite of programs developed by CUNY to promote college readiness, open pathways to college, and increase students’ chances of earning a college degree. Among these are nationally recognized programs with demonstrated success in improving high school graduation and college readiness rates, and increasing the number of students who successfully transition to college. These programs—including College Now, the Early College Initiative, and LINCT to Success, among others—serve approximately 30,000 students per year.

These programs go beyond academic preparation to a wider range of readiness attributes. They contribute to prospective students’ understanding of the culture of college, sometimes called “college knowledge.” Students learn not only to cope with content knowledge but, more generally, how college expectations and behaviors differ from those in high school, and how to function in the college social and academic environment.²²

Administrators from these programs continue to work with the NYCDOE to create opportunities for more New York City students to gain access to the programs. Under the umbrella of the Mayor’s College Access for All agenda, staff in the programs will work with NYCDOE officials to support the citywide Equity and Access initiative. This includes a large-scale project to introduce more middle school students to a college campus. It also includes the College Now Summer Bridge Program for students in NYCDOE Renewal Schools, where few students have participated in the program over the years, and it has informed the development of the College Now Summer STEM Academy, which provides lab-based research experiences on several CUNY campuses.

In addition to expanding existing Collaborative Programs, CUNY and the NYCDOE will leverage their successful partnership to increase the college-going rates of NYCDOE graduates, particularly their enrollment in CUNY colleges, through initiatives that encourage college attendance. This new collaborative effort aims to make all students with an interest in attending college aware of the opportunity to enroll at CUNY and receive the necessary support to complete the enrollment process, including assistance in completing the FAFSA (application for financial aid). A special focus of this new collaboration is to minimize “summer melt”—the phenomenon in which students, particularly those from low-income backgrounds, apply to college and are admitted, but fail to enroll in college the fall after high school graduation. Through programs such as Strive for Success CUNY will continue to work with dozens of educational non-profits and partner high schools that support more than 5,000 high school graduates navigating the matriculation process each summer and into the first year of college, especially for those who enroll at our community colleges.

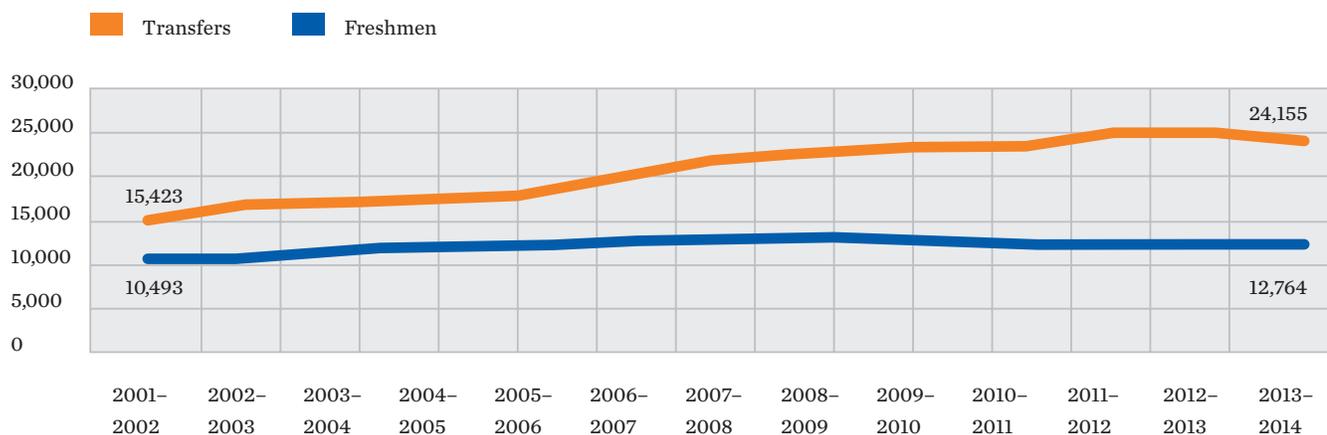
As CUNY refines its approach to developmental education, it will work closely with NYCDOE leaders, policymakers, and school-level staff to ensure that the new approaches are understood by students and those who support them.

Both CUNY and the NYCDOE face a significant challenge in their individual and collaborative work around college readiness as they navigate rapid change in state-level policy. New York State’s Education Department (NYSED) implemented the Common Core Learning Standards (CCLS) beginning in 2012. NYSED redesigned its primary and secondary school testing program to reflect the new standards. The CCLS are gradually being incorporated into the high school curriculum across the city and state but important aspects of this reform agenda are still under development. Despite the lack of certainty around the testing program, CUNY is optimistic that high school graduates will be better prepared for success in college as a result. The university continues to be proactive with regard to this reform, engaging in statewide discussions to help anticipate next steps in defining college readiness. CUNY faculty have participated extensively in expert panels to design the content and standards associated with the new Common Core-oriented Regents Exams in English language arts (ELA) and algebra, and Collaborative Programs staff are leading statewide projects to develop curricula that support high school seniors who are not meeting college readiness standards in these subjects. Further, the university has established its own standards of college readiness based on ELA and math exams and stands ready to share its research on readiness with NYSED.

THE TRANSFER PATH

The transfer pathway is a critically important portal to a baccalaureate degree for a substantial number of students each year at CUNY and across the country. Nationally, the vast majority of community college students aspire to a baccalaureate degree (about 80 percent), but only a small proportion ever earn one. Research indicates that students who enter a baccalaureate program from a community college are less likely than those who enter as first-time freshmen to obtain the bachelor’s degree.²³ CUNY’s own analyses show that even after controlling for background characteristics including high school grades, transfers are less likely to earn a baccalaureate degree than are native students.

Figure 6: Trends in New Student Enrollment in Bachelor’s Program



As an integrated system with colleges in close proximity and with a growing number of community college programs that articulate with those at the senior colleges, CUNY will always have significant numbers of students who move from one campus to another over the course of their college career. The path from a

community college to a senior college is particularly well traveled, but at CUNY, students transfer in all directions—up, down, and laterally. The number of students who enter a CUNY baccalaureate program from a CUNY community college, another CUNY four-year college, or from a college outside the CUNY system has increased by about 55 percent over the past 15 years. Transfers from across all sources represent a growing percentage of new students entering CUNY’s baccalaureate programs. In fall 2015, two-thirds of the new baccalaureate students entering CUNY’s senior colleges were transfers, mostly from a CUNY community college. CUNY is now implementing a new reverse transfer program to confer an en route associate degree (discussed in detail in Chapter 3) to ensure that students can transfer credits back to their original community college to receive their associate degree. CUNY will also launch a new program that awards merit scholarships to high-achieving CUNY associate degree holders who continue their studies toward bachelor’s degrees at CUNY.

Credit loss upon transfer and “transfer melt” (associate degree completers who intend to transfer but do not) are the greatest obstacles facing students who begin in an associate degree program with the goal of attaining a baccalaureate degree. Fortunately, CUNY’s organizational structure facilitates the kind of integration that can help colleges and the university as a whole to overcome these challenges.

Restrictions on the transferability of credits have been a chronic problem, slowing the progress of transfer students toward their degrees. Implemented in fall 2013, CUNY’s Pathways initiative, which guaranteed the portability of general education course credits and a small number of pre-requisite courses for the most popular majors, was specifically developed to address progress toward degrees for transfer students. Preliminary data strongly suggest that the Pathways Initiative has eased transfer, particularly of general education courses, leading to more efficient credit accumulation. Efficient credit transfer in the majors appears to be somewhat less successful thus far. Over the next four years CUNY will continue to work to improve Pathways: this is discussed more fully in Chapter 3.

The strengthening of connections throughout the system in the next four years will also improve the transfer process. At CUNY, the program approval process requires all new programs—at both the baccalaureate and associate level—to have at least one articulation agreement in place with another CUNY college to facilitate transfer from the associate level to the baccalaureate level. And New York State regulations require that all newly approved Associate of Art (AA) and Associate of Science (AS) programs have at least one articulation agreement with a four-year college. Some colleges are also developing joint programs in areas such as teacher education and nursing. In line with State Education Department policy, students who complete a certificate program may have those credits transferred into a baccalaureate program. These credits may become transfer credits at other CUNY colleges at the discretion of the receiving institution. And a small number of students are benefitting from articulation agreements negotiated between continuing education programs and some of the community colleges. CUNY will continue to encourage these efforts at coordination and curricular alignment to reduce transfer melt and smooth students’ paths through the system.

An especially promising model for a more fully integrated University is the CUNY Justice Academy—a consortium of seven colleges, linking three associate degree programs offered at CUNY community colleges with a bachelor’s degree at John Jay College. Students who complete the associate degree are guaranteed admission to the corresponding bachelor’s program, with full credit for the first 60 credits of collegiate study. The participating colleges are linked through a common strategic plan and learning goals, standardized assessment metrics, and shared resources. To date, students entering the Academy have posted higher associate degree completion rates than other transfer students entering John Jay from the same community colleges.

HONORS PROGRAMS

Much of the CUNY-NYCDOE collaboration is focused on raising college readiness and college-going rates for students who may have limited higher education options beyond CUNY. However, NYCDOE schools also produce students of the highest academic caliber who have a multitude of excellent higher education options available to them. In an effort to attract and retain these most academically well-prepared students and their counterparts from private and parochial schools, as well as top students from outside the city, CUNY has invested in expanding and enhancing honors programs fashioned to provide a rigorous and intellectually stimulating undergraduate experience that rivals the most elite undergraduate colleges in the nation. The Macaulay Honors College was founded just over 15 years ago as a highly selective college within CUNY where New York's most promising students receive the financial and academic support to realize their leadership potential through special intellectual and cultural opportunities. Macaulay's full-tuition merit scholarship and the Opportunities Fund—a scholarship to support co-curricular opportunities in the city and abroad—offer students the freedom to explore the full range of academic and experiential offerings on their respective home campuses—Baruch College, Brooklyn College, City College, Hunter College, John Jay College, Lehman College, Queens College, and the College of Staten Island—and beyond, without incurring a debt load that might otherwise inhibit their choices. In addition to achieving a four-year graduation rate of nearly 70 percent, the Macaulay program has produced students who are recipients of Rhodes, Truman, National Science Foundation, Fulbright, Goldwater, and Salk awards and fellowships and who are recruited by elite graduate schools.

Macaulay and campus-based honors and scholars programs, including discipline-specific programs, provide qualified students forums for intellectual engagement with faculty on challenging, discipline-specific, and interdisciplinary topics. They enjoy opportunities for collaborative learning, meaningful research, creative projects, and international travel, as well as other special opportunities on campus. Several campus-based programs such as the BA-MD program at Brooklyn College and the Thomas Hunter Honors Program at Hunter College have long histories, while others, such as the Honors Program at John Jay College and the Verrazano School at the College of Staten Island, were developed more recently. Some programs serve undergraduates entering as first-time students who qualify based on their high school record, and other programs are designed for transfers or continuing students who have demonstrated strong academic performance in college.

Honors programs are not limited to four-year colleges at CUNY, however. A number of its community colleges have programs designed to attract and retain highly motivated students by offering academic, cultural, and social enrichment to qualified students. CUNY seeks to better understand the impact these programs have on student access and success, and will consider expansion both in terms of capacity of existing programs as well as the development of new honors programs at community colleges that do not currently offer them.

ADULT LEARNERS

New York State has 1.8 million adults between the ages of 25 and 64 with some college experience who have not earned degrees, and an additional 2.6 million adults with high school credentials but no college credits.²⁴ Clearly these learners represent a largely untapped enrollment pool for CUNY, but more importantly, they are also a key student constituency, and serving them is a part of the university's mission.

CUNY has a long history of serving non-traditional students, including those who delay entry to college to enter the workforce or military or to raise a family, or who started but did not complete a college degree. Even though adult students currently represent only a minority of CUNY's undergraduates (26 percent are 25 years old or older), this segment of the CUNY population is nonetheless substantial. Some CUNY programs that primarily serve working adults include: the Center for Worker Education at City College,



the Joseph S. Murphy Institute for Worker Education and Labor Studies, Lehman College's Professional Studies/Adult Degree Program, Queens College's Adult Collegiate Education (ACE) and Labor Education Advancement Project (LEAP). In addition, nearly every CUNY college serves adults through non-degree, continuing education programs. Every year, CUNY's campus-based adult and continuing education programs, which offer both vocational and avocational courses, have enrollments upwards of 275,000.

The importance of a college degree for advancement in the workforce was discussed in the Introduction to this plan (Chapter 1) and the importance of a college degree for personal growth and satisfaction cannot be dismissed. In this context, in fall 2015 CUNY established a working group on workforce development, worker education, and adult learners. The report and recommendations of this working group, released in spring 2016, will focus new attention on adult learners.

Given this interest, in the four years covered by this plan CUNY will increase access and improve success rates for adult students, including those pursuing graduate degrees or looking to start a new career. CUNY will invest in attracting adult students to its associate and baccalaureate programs, as well as its graduate programs, through marketing strategies designed to reach and appeal to this demographic and through innovative practices that facilitate their momentum. Further, with the scheduling flexibility offered through online education, CUNY's expansion of such opportunities, as noted below, will make it easier for the many adults without a college degree to enroll in higher education.

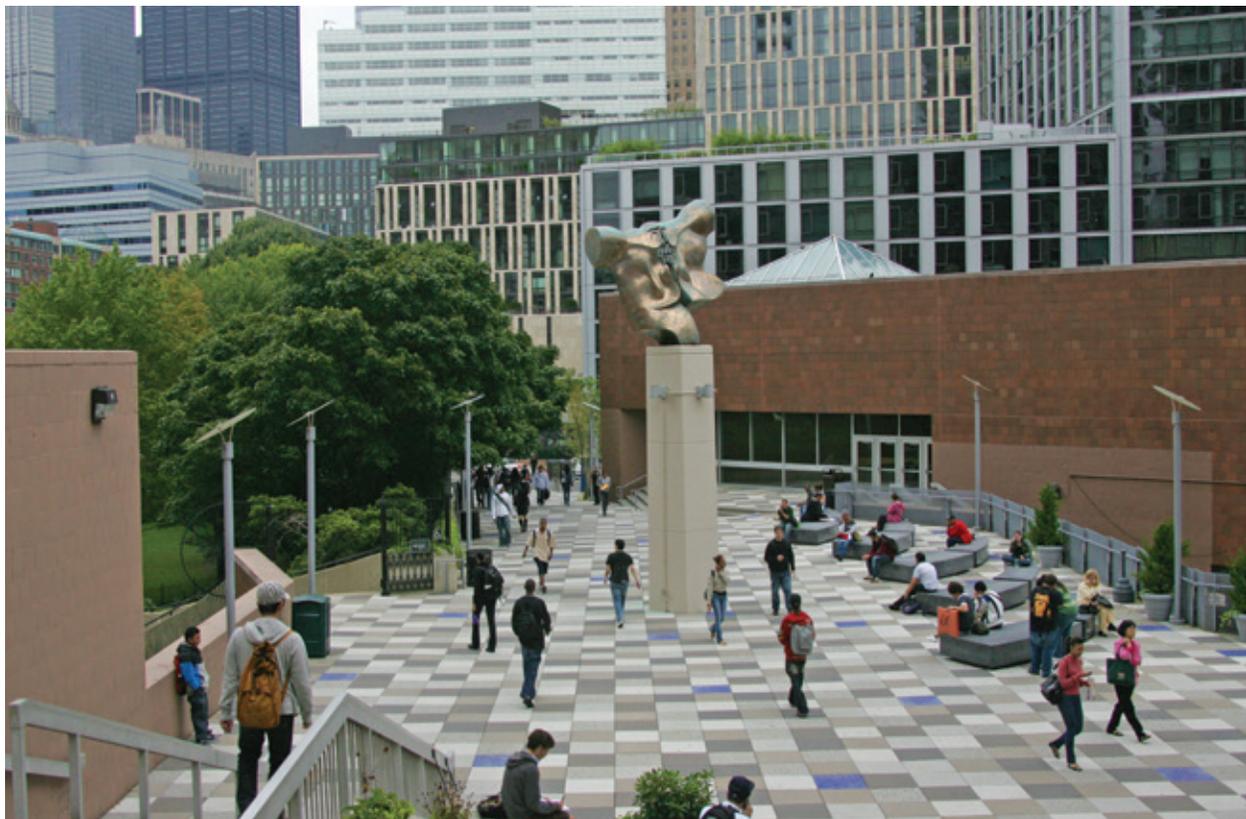
The university is keenly aware that as it expands opportunity for adults it needs to be cognizant of the distinctive challenges nontraditional college students face, not the least of which is balancing jobs, families, and education. In this context, CUNY will be considering the development of policies that will help adult students enroll in CUNY, progress in a timely way toward a degree, and ultimately graduate. CUNY will also be exploring program models and structures, including effective part-time programs and college success programs that meet the unique needs of students who have adult responsibilities.

As part of a broader review of its developmental education policy (discussed above), CUNY will examine the proficiency standards for adult students, with an eye toward increasing flexibility and eliminating barriers for students who have been out of high school or college for some time. CUNY will also offer more courses in the evenings, on weekends, and online, making it possible for students to pursue an entire degree program outside of normal work hours. Additionally, the university is committed to ensuring that basic college services such as bursars, registrars, advisors, and tutors are accessible to working adults. Additional options currently under consideration for attracting and supporting adult students include actively recruiting older students into existing program models that have proven highly successful, such as ASAP and CUNY Start.

A key component of improving degree completion for working adults is improving academic momentum. In addition, therefore, to improving course availability and course success rates, CUNY will explore strategies that may allow adult students to use credit-worthy life and work experience, as well as prior education and training, to meet degree requirements.

CUNY is also considering a reorganization of services so that counselors and advisors can work together more closely to help adult learners through the enrollment process: assist them in choosing programs of study and courses, and, when necessary, connect them to appropriate services and support programs.

Finally, CUNY has just begun the process of changing the Joseph S. Murphy Institute for Worker Education and Labor Studies to school status, thus increasing the offerings and raising the regional and national profile of worker education, workforce development, and labor studies. CUNY's success in meeting the challenges of attracting, serving, and graduating adult students will not only better serve the working adult population, but will also better meet the needs of New York City employers, unions, and employer intermediaries.



RECRUITMENT AND ADMISSIONS

CUNY's undergraduate recruitment and admissions processes reflect a partnership between CUNY's central office and the individual CUNY colleges. Each four-year college sets its own standards for admission to baccalaureate level study, but application processing is centralized. Community colleges have no specific admissions criteria other than a high school diploma or its equivalent. Communication with prospective and admitted students is also a collaborative effort between the central Office of Admissions and the colleges.

CUNY is in the process of introducing several new recruitment and admissions strategies to grow enrollment at all levels and to ensure that the university is reaching out to all possible constituencies. Recruitment will focus on providing up-front information about the excellent academic and co-curricular offerings at CUNY colleges, and will emphasize that within the CUNY system that there is a place for every student, of every background, and every kind of talent, interest, learning style, and level of academic preparedness. Recruitment materials will continue to highlight the quality and value a CUNY education provides and the benefits of pursuing that education in a global city that is the center of finance, arts and culture, and entertainment, and is second to none in its rich cultural, ethnic, and linguistic diversity.

The re-engineered admissions system will offer CUNY colleges the ability to review applicants' co-curricular and work experience, recommendation letters, and essays, in addition to standard academic performance data. This will provide a more nuanced and flexible approach to admissions. Colleges will also have more control over the timing of admissions decisions, as is the case at other selective colleges. The new process will also better match a student to a CUNY college. In this context CUNY is exploring the use of predictive analytics to help applicants select their best fit CUNY college, one that offers the academic programs, supports, student life, and setting best suited to the student's preparation and aspirations. This new approach may allow admissions officers to identify students who have academic promise who might have been denied admission under the old system. The goal is to better match potential students with the various entry points available at CUNY and to ensure a college setting in which all students are comfortable and can succeed.

To support this more holistic review, CUNY will redesign the data flow from NYCDOE to CUNY to deliver more timely and complete data to its revamped admissions system. CUNY will also take greater advantage of technology. The new system will allow prospective students to upload essays and submit, online, additional information for specific colleges or programs. Applicants will also be able to see more information on the status of their applications. Related changes will allow students to self-report standardized test scores (SAT, ACT, AP, TOEFL, IELTS), saving students time and money and decreasing the application processing time on CUNY's end.

Investing in Graduate Education

While there is substantial discussion in this plan about efforts and initiatives in undergraduate education it is important to remember that CUNY offers a full range of academic programs and degrees, from non-credit classes in Adult and Continuing Education, to certificate programs, through master's, doctoral, and professional degrees. Developing and refining programs in all these areas is part of CUNY's commitment to serving the educational needs of all New Yorkers.

CUNY currently enrolls some 24,000 graduate students system-wide, but for some time, enrollment in CUNY's graduate programs has been declining, falling by 13 percent between 2010 and 2014, largely but not entirely due to declining enrollments in schools of education. CUNY's master's programs are closely aligned with professions, particularly education, business, public administration, health sciences, and psychology. Teacher education programs, the largest component of CUNY's master's enrollment, have been affected by the overall drop in demand for teachers, with the exception of certain specialties. CUNY has a

number of master's programs that have national reputations and are highly competitive—just a few examples include the MFA programs at Hunter and Brooklyn, as well as several programs in social work and Baruch's business programs. But preliminary studies show that many others seem to suffer from perceptions that they lack quality or profile, although some remain attractive because of their affordability and convenience.

In the coming years CUNY will work with the senior colleges to develop and promote master's level programs that are well aligned with market demands for advanced study. During the period of this plan, the central enrollment management office and the colleges will collaborate to market the university's master's programs more aggressively. CUNY will establish a greater online presence for selected master's and professional programs. One priority will target college websites to include more meaningful, clear, and dynamic content. Already, the central website for graduate study—cuny.edu/grad—has been refreshed with new information on applying for and financing graduate study, as well as information targeted to international students. CUNY has also procured online display advertising and re-targeting for ads promoting monthly information sessions. Going forward, colleges will invest in more search engine marketing and online display advertising, especially during high recruitment season. Another priority will be to make available new graduate admissions tools that will provide each college and the central office access to comprehensive data to enhance the efficiency and effectiveness of graduate recruitment.

In the next four years CUNY will continue to work with its colleges to develop master's level programs with a special focus on Professional Science Master's programs. These programs appeal to students who are interested in a science-based job in industry or government rather than in academia. They provide high quality, professionally targeted graduate education to talented students in STEM fields. Since the submission of the previous Master Plan seven Professional Science Master's programs have been developed: geographic information systems (Lehman College) photonics (Queens College), earth systems and environmental science and technology (City College), biomedical lab management (Hunter College), biotechnology and public health (Hunter College), data analytics and applied social research (Queens College), and translational medicine (City College). The following Professional Science Master's programs are currently in various stages of development: bioinformatics (Hunter College), material science and nanotechnology (City College), digital humanities (Lehman College), forensic science (John Jay College), environmental assessment management (Brooklyn College), digital humanities (Graduate Center) and data analysis and data visualization (Graduate Center).

In 2015 Chancellor Milliken adopted a plan to enhance doctoral education in the bench sciences at CUNY by significantly strengthening its consortial model. Over the next four years the university will improve the support packages available to doctoral students in these disciplines and thereby improve the quality of incoming classes. Future development of doctoral programs in the bench sciences will be guided by a central advisory committee.

Internationalizing Recruitment and Enrollments

Studying at CUNY alongside students from other countries is one of the surest ways we know to expose CUNY students, many of whom cannot afford to study abroad, to different cultures and ideas. Such exposure can globalize their perspectives and skills, enliven their classroom experiences, expand their networks and horizons and engender a sense of global citizenship. International recruitment leverages the attraction of CUNY's location in a global city as a magnet for talent across the world and enriches our campus communities, the university, our city and state. An efficient means of strengthening CUNY's image abroad, it can pave the way to new opportunities for international scholarly exchange and research collaborations.

Bringing more international students to CUNY colleges with capacity for growth or international programs will be a priority in the coming years. Nationally, enrollments of international students have increased substantially, which makes strategic international recruitment an area where CUNY must continue to find



its footing and capitalize on the attractiveness of its location and offerings. CUNY's international student enrollments have decreased more than 20 percent since 2009, with 8,391 international students on F-1 visas for degree candidates and ESL program participants as of spring 2015. The 276 students on J-1 visas as of spring 2015 reflect modest long-term exchange activity at CUNY, as well as low visibility of CUNY as a destination for students sponsored by foreign governments.

To better align CUNY's strategic approach to international recruitment with current trends, the university will undertake a feasibility study to determine a realistic target for growth in international student recruitment over the next five years. At many other U.S. institutions, recruitment agents play a major role in attracting qualified candidates,²⁶ but CUNY colleges' efforts in this area have been hampered by procurement rules. In order to reduce barriers to international recruitment, CUNY is exploring how to facilitate the RFP process for tax-levy payments to recruitment agents, and to establish criteria for acceptable practices when working with such agents. The university is also working on establishing a process for students with education outside of the U.S. to obtain transfer credit evaluations from credit evaluation organizations. This will significantly reduce the amount of time it takes for CUNY to provide admission decisions to students with foreign credentials. CUNY will also aim to increase the yield of accepted applicants who enroll by restoring direct admissions for international students. Other efforts will include establishing an infrastructure for coordination among international recruitment staff, and exploring possibilities for establishing a summer institute targeting an international audience with potential to serve as a pipeline to degree program enrollment.

CUNY has already taken some minor steps toward improving global branding including its unified representation at the world's largest international education conference and fair (NAFSA) in spring 2016. To further enhance its visibility abroad, CUNY will facilitate the participation of all of its constituent colleges in the Study New York and Education USA programs.

In spite of challenges to an energetic international recruitment agenda at the colleges, the cosmopolitan character of our catchment area helps to create an extraordinarily diverse CUNY student body in terms of heritage (37 percent born outside the U.S.) and languages spoken (189).²⁷

ACCESS THROUGH ONLINE EDUCATION

Online instruction offers a key point of access for many current and potential students and will be a major priority for the university under Chancellor Milliken's leadership. While slow to take hold at most CUNY colleges, online instruction is widely viewed as an area where the university stands to dramatically expand access to its rich educational resources, not just for existing students, but to greater New York and the world. Indeed, if access and excellence are core principles of the university's mission, then online and hybrid learning are integral to that mission. Reducing barriers of time and distance, online and hybrid courses and programs can potentially increase access and improve degree completion rates, contribute much needed revenue to CUNY's colleges, and help mitigate constraints of physical space.

Online instruction will expand access as it presents an opportunity to attract students who might not otherwise enroll at CUNY or in higher education at all, such as adult students and others who work when most in-person classes are offered, or who have family obligations and schedules that make it challenging to attend classes on campus or keep to a regular schedule. CUNY's plans for expanding online education, not only as a mechanism for expanding access, but also to accelerate degree progress, are discussed in detail in Chapter 3.

AFFORDABILITY

College affordability is a major topic of conversation among politicians, policymakers and the public. College cost is a concern among parents with school-aged children²⁸ and a critically important issue among public higher education leaders. College affordability is a crucial element of CUNY's mission to democratize access to higher education.

CUNY's high quality education for relatively low tuition makes CUNY a tremendous value in higher education. In *Washington Monthly's* "Best Bang for the Buck" ranking which compares colleges' net price to graduation rates, student loan default rates, and Pell receipt rates, four of the top five "Best Bang for the Buck" colleges in the Northeast region are CUNY schools.²⁹ About 60 percent of CUNY's full-time undergraduates attend college tuition-free, and 80 percent of its graduates leave with no debt whatsoever. These are substantially lower percentages than all other New York area private institutions and comparable state flagship institutions. CUNY community colleges offer an especially affordable option for students who may qualify for baccalaureate admissions at CUNY or elsewhere but opt to enroll in a community college for their first two years to save the modest difference between the tuition and fees at CUNY's community colleges and its senior colleges. Despite the relatively low cost of a CUNY education, attending a CUNY college too often presents a financial hurdle for the large number of New York students from low- and modest-income families.

The CUNY Compact has played a pivotal role in maintaining a tuition system that promotes access above all. Through the state's commitment to "maintenance of effort" and modest and predictable tuition increases, the CUNY Compact has allowed the university to keep tuition low while continuing to invest in education programs, services, and facilities for students despite a reduction in state funding. The CUNY Compact has also helped families plan better to meet college costs by reducing the risk of a large or unexpected tuition increase. In 2015-2016, average tuition and fees at CUNY's four-year colleges (for in-state students) was \$6,782 compared to \$9,410 nationally for public four-year institutions (in-state).³⁰ Unfortunately the Compact was not renewed in New York State's fiscal 2017 budget.

CUNY will continue to take a lead in advocating for the availability of robust state and federal financial aid. But not all CUNY students are eligible for financial aid, including undocumented students and students with income levels that are above the federal or state thresholds. And even for those who meet financial eligibility, need-based aid like New York State’s Tuition Assistance Program (TAP) and Federal Pell grants may not cover full costs. Many of these students will benefit from CUNY’s continuing obligation to bridge the gap between the maximum TAP award and tuition, but TAP and Pell do not cover all of the costs of attendance over and above tuition.

The New York City Council reinstated a CUNY Merit Scholarship Program in fall 2014, providing a welcome source of additional aid to students who graduated from a New York City high school with a B average or better and who maintain a B average while in enrolled full time at CUNY.

CUNY has taken a number of steps to keep a CUNY education affordable without compromising—indeed while improving—educational quality. CUNY has substantially increased the revenue from philanthropic contributions by foundations, businesses, alumni, and friends who understand and believe in CUNY’s mission. Over the next four years CUNY will continue to mount a strong campaign for outside funding that will enable further investment in academic and student support services and scholarships. These efforts are detailed in the Financial Support section of Chapter 3.

Other initiatives have helped to reduce the less obvious costs associated with attending college. Beyond tuition and fees, college students face the costs of textbooks and other course materials. So CUNY continues to invest in its textbook initiative, which provides low-cost options for thousands of undergraduate students each school year to access otherwise expensive textbooks. The university anticipates expanding print and electronic offerings through this initiative and to advancing the expansion of open education resources.

OPPORTUNITY FOR ALL

New York is a complex and diverse city that offers both advantages and challenges to a university that aspires to serve its current student body, prospective students, alumni, and a host of important groups. CUNY has always approached these challenges with creativity and determination, and in doing so has expanded access and opportunity to a wider range of New Yorkers. There are many special programs administered by specific colleges, or by the university that were developed to ensure that special populations have access to a high-quality higher education at CUNY. The CUNY Language Immersion Program (CLIP), for example, offers intensive English language instruction to individuals whose native language is not English, and who want to pursue a degree at CUNY but need to improve their English language skills before matriculating. Students from educationally and economically disadvantaged backgrounds have access to two special supportive programs at CUNY funded by New York State: Search for Education, Elevation, and Knowledge (SEEK) at CUNY’s senior colleges and College Discovery (CD) at CUNY’s community colleges. The university offers pathways for individuals with physical or learning disabilities, for those who have served or continue to serve in the U.S. military, and for numerous other special populations that face more than the usual set of challenges in accessing higher education opportunities. Chapter 3 presents these and other targeted support programs in detail as it discusses their progress and promise for supporting student success.

CUNY is proud of its progress in expanding the avenues through which affordable and excellent higher education is available to a diverse population. With entry points for individuals with nearly every level of preparation and aspiration, CUNY plays an indispensable role in advancing educational attainment, strengthening the economic and social health of the city and state, and enhancing the overall quality of life among New Yorkers.



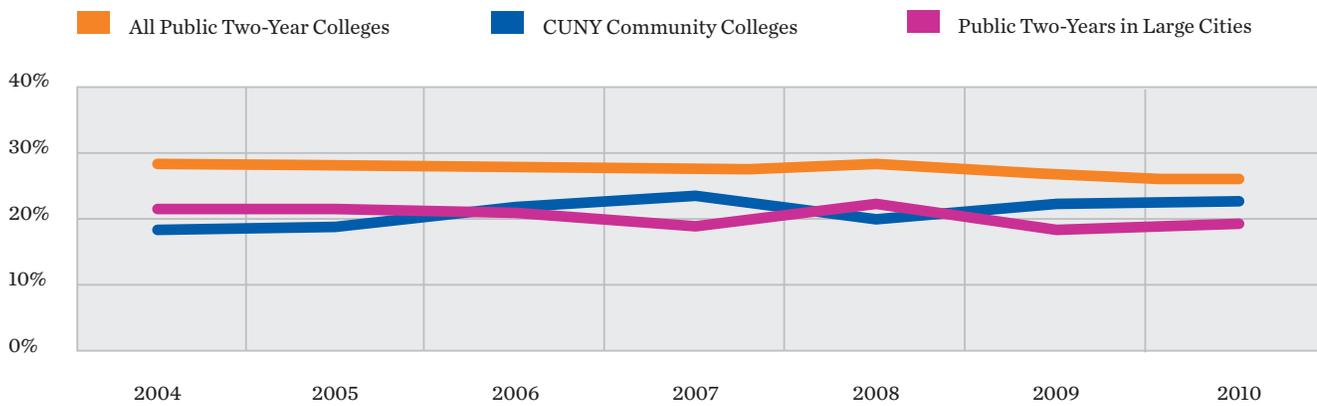
Chapter 3: CUNY Will Raise Success Rates

Chapter 1 of this plan underscored the growing economic return of a college degree and the increasing disparity in economic well-being between college graduates and those with a high school diploma or less. Chapter 2 described the many portals provided by CUNY to enable students to earn that college degree. Hundreds of thousands of students have taken advantage of those opportunities as a way to achieve better lives for themselves and their families—the classic American quest for upward mobility. But the promise of upward mobility is an empty one if the student’s investment of time and money ends in disappointment, without a quality education, a respected degree, or appropriate employment. Students often define success in the context of satisfying and gainful employment; an educational institution falling short of that definition will meet neither its students’ expectations nor its own responsibilities.

The economic benefits of degree completion are indisputable. Overall employment in New York City is projected to expand by 13 percent between 2012 and 2022. As in the nation as a whole, much of the growth will be in positions that require training beyond high school.³¹ Workers who have more academic credentials experience sharply lower unemployment rates than those with fewer credentials. In 2014 the unemployment rate in New York State was 6.5 percent for workers with only a high school diploma, compared to 4.7 percent for those with an associate degree, 4.6 percent for those with a bachelor’s degree, and 2.4 percent for workers with advanced degrees.³² Workers with more years of education also earned substantially more than those with fewer years. These statistics reinforce the university’s responsibility to ensure that CUNY students, no matter who they are or where they begin, graduate in a timely manner, so that they may move confidently into the workforce. CUNY has set ambitious goals for raising its graduation rates. Chapter 3 describes the many programs and supports that CUNY now offers and plans to put in place to meet these goals.

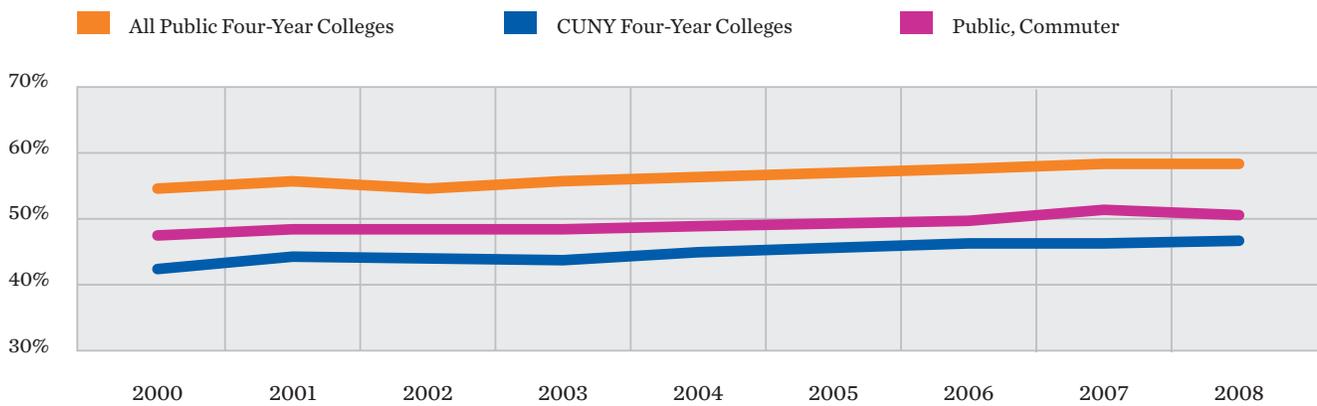
From basic skills proficiency to dissertation defense, CUNY offers a vast array of academic programs, including 262 associate degree programs, 793 baccalaureate programs, and 488 master’s programs, as well as advanced certificate programs, the JD at the CUNY School of Law, a range of Ph.D. programs at the CUNY Graduate Center, and professional doctorate programs across the system. At every level, the success of CUNY students is a challenging goal. Students’ backgrounds and ambitions vary, and ensuring success for every student requires an intricate system of support mechanisms—developmental education, advising processes that propel students toward degree completion, course availability that is flexible and oriented toward student needs, appropriate financial support and high quality academic offerings that align with the careers that are driving 21st century opportunity.

Figure 7: Trends in Four-Year Graduation Rates of Full-Time, First-Time Freshmen at Two-Year Public Colleges



Source: CUNY analysis of IPEDS data

Figure 8: Trends in Six-Year Graduation Rates of Full-Time, First-Time Freshmen in Baccalaureate Programs at Four-Year Public Colleges



Source: CUNY analysis of IPEDS data

In recent years CUNY has made real progress in its efforts to raise rates of degree completion. The four-year same-college graduation rate rose from 19.5 percent for the 2004 freshman associate degree cohort in CUNY community colleges to 23.5 percent for the 2011 cohort, a completion rate that exceeds the national rate for urban public two-year institutions. Likewise, the six-year rate for CUNY bachelor's programs rose from 42 percent (2000 cohort) to 48 percent for the 2008 cohort.³³ These numbers are encouraging, but clearly much progress remains to be made and increasing these rates will be among CUNY's highest priorities. Fortunately, CUNY is learning more about how to achieve the kinds of gains that will ensure that a much higher percentage of students can forge a path to graduation, to the workforce, and to economic stability. ASAP, discussed later in this chapter, and Guttman Community College are models with enormous potential and compelling evidence of success. The three-year completion rate in ASAP is more than double that of comparable students not in the program, and Guttman's results are similarly impressive. At the senior colleges, the university is seeing an intensified focus on academic program offerings that lead to careers, improved advising, coordination of student services, and more scholarships to ensure continued affordability.

The road to upward mobility in the 21st century technology and knowledge-based economy has become increasingly precarious. CUNY has a responsibility to provide the necessary tools and support to ensure that our students can travel that road. Over the next four years CUNY is committed to meeting ambitious graduation targets by extending and establishing an array of coordinated innovations described below.

INVESTING IN STUDENT SUPPORT

Better academic and co-curricular supports for CUNY's unique student body are top priorities. Given the great diversity of its students, the university faces special challenges that make varied and nimble support channels essential to improving the prevailing rates of student success. In tandem, it requires faculty and staff to anticipate and meet a great variety of needs

As demand for higher education has grown, CUNY's undergraduate population has come to more closely resemble the model of "traditional" college students: 18 to 24 year olds attending college full time and not working. Over the past 15 years, CUNY's senior colleges and the Macaulay Honors College have increasingly attracted some of the best-prepared students—graduates of the top high schools in New York City. In 2014, 70 percent of CUNY's undergraduates were under the age of 25, up from 63 percent in 2002. And less than 30 percent of students worked more than 20 hours per week. But in many other ways CUNY's undergraduates are still very non-traditional. As noted in Chapter 2, 42 percent of undergraduates are in the first generation of their family to attend college. Thirty-seven percent of undergraduates were born outside the U.S. mainland and 43 percent speak a native language other than English. Fifty-eight percent of undergraduates come from low-income families and qualify for Federal Pell grants, and 39 percent report household incomes less than \$20,000 annually.³⁴ Most live at home and commute to college and spend little time on campus outside of class.

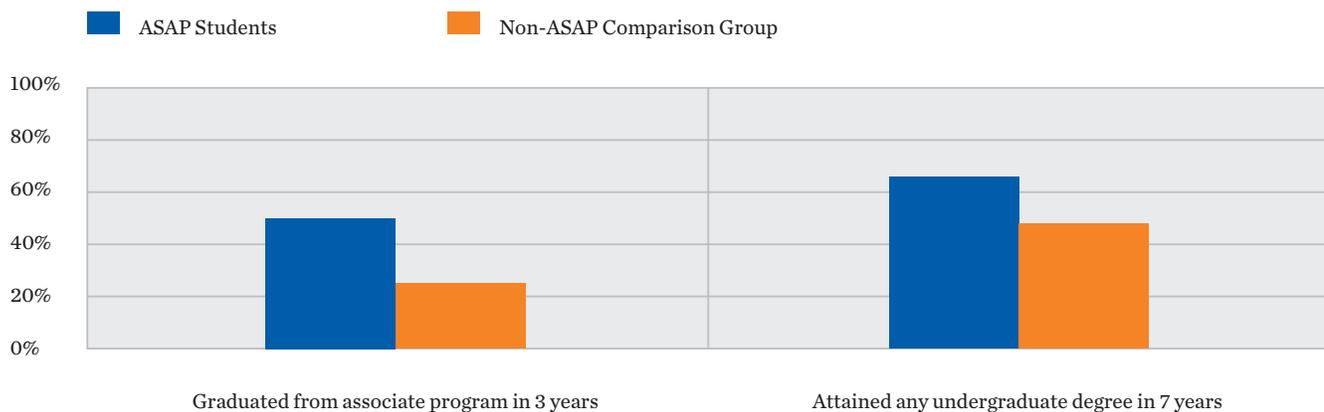
Many of these students have in common a need for support outside the classroom. College can be confusing, with its vast buffet of courses and majors. Some are not sure that they belong in college, having grown up in homes and neighborhoods in which higher education is unusual. Even students whose families are well educated can have difficulty navigating the bureaucracy of admission offices, bursars, registrars, and advisors, not to mention departments and faculty members. Students are often economically fragile. Even the slightest disruption in their finances—an illness, loss of a part-time job, or an interruption in child care—can delay or derail their academic careers. For all these reasons and more, support services that assist them academically, ease their transition to college, and buoy them financially when necessary are essential ingredients in student success.

ASAP

CUNY's nationally acclaimed Accelerated Study in Associate Programs (ASAP) is the university's most successful initiative to raise degree completion rates. The program was founded in 2007, with support from the New York City Center for Economic Opportunity, to improve graduation rates among community college students. ASAP has served 12,780 students as of fall 2015. In 2015–2016 more than 8,000 students were enrolled at nine colleges (BMCC, Bronx CC, Hostos CC, Kingsborough CC, LaGuardia CC, Queensborough CC, Staten Island, Medgar Evers, and NYCCT).

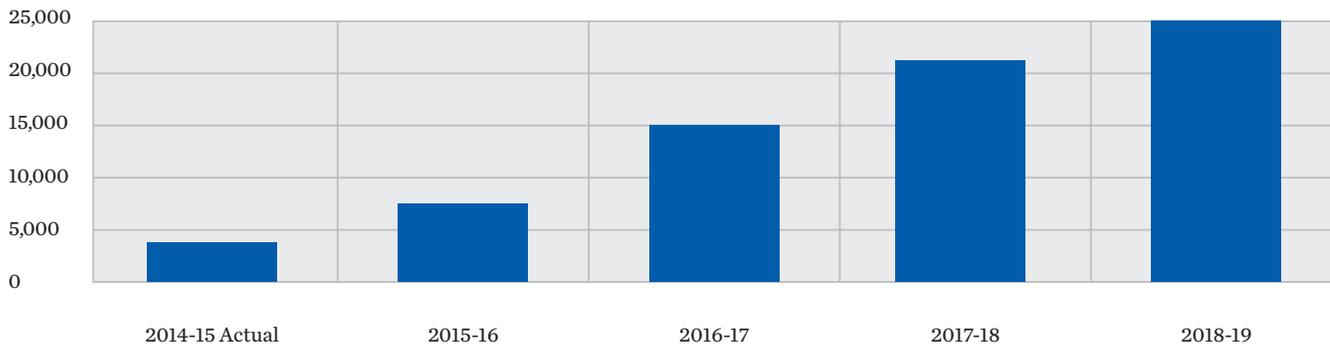
ASAP offers comprehensive support services and financial resources that remove barriers to full-time study, build student resiliency, and support timely graduation. The program provides dedicated academic advisors, who have manageable caseloads, as well as tutors and career advisors. Advisement is mandatory and intrusive. The program also provides robust financial supports: ASAP participants receive free text books, a monthly MetroCard (to pay for mass transit in New York City), and a waiver of tuition not covered by financial aid, as well as tuition for summer and winter courses. All of these benefits come with clear conditions attached. Students must maintain their full-time status (except for the final semester if they have fulfilled all their degree requirements) and keep their regular appointments with their advisors. During their first academic year in the program, students are also enrolled in block-scheduled courses, where two or more courses have places reserved for ASAP students. Students are also strongly encouraged to take any needed non-credit, developmental courses immediately and continuously until fully skills proficient.

Figure 9: Graduation Rates for ASAP Students and Comparison Group



ASAP's results have been remarkable. To date, the average three-year graduation rate among ASAP students is 53 percent compared to 23 percent for similar students. The national urban community college three-year graduation rate is 16 percent.³⁵ Seven years after beginning, 64 percent of ASAP students had earned an undergraduate degree (associate and/or bachelor's degree) compared with 42 percent of similar students. According to the independent research of MDRC, the impact of the program on the three-year rate is "the largest MDRC has found in more than a decade of research on higher education."³⁶ The program is highly effective for students who have developmental needs and especially effective for students from underrepresented groups.

Figure 10: ASAP Enrollment Targets



Despite the higher cost per student, the return on investment is exceptional. ASAP was the subject of a comprehensive cost-benefit study led by Dr. Henry Levin of the Center for Benefit-Cost Studies in Education (CBCSE) at Teachers College of Columbia University. This cost-effectiveness analysis revealed that despite higher up-front costs, the average cost per three-year ASAP graduate is lower than for comparison group graduates. The study found an average savings of \$6,500 per graduate.³⁷ The benefit-cost analysis found that an investment in ASAP has very large financial returns for both the taxpayer and the ASAP student due to increased lifetime earnings and tax revenues and reduced costs of spending on public health, criminal justice, and public assistance. Dr. Levin and his team estimated that the program yields \$3.50 in increased tax revenues and social service savings for every dollar invested.³⁸

CUNY has begun to mainstream ASAP. Given the program's proven value, CUNY will give as many students as possible the opportunity to participate. With the city's generous support, CUNY plans to expand ASAP more than five-fold during the next four years, growing the program to 25,000 participants in fiscal year 2019. ASAP expansion will have a special focus on serving more STEM majors, an area of mutual interest for CUNY and the city, to ensure that more low-income, minority New Yorkers have every opportunity to graduate with in-demand skills and enter careers with strong earning potential. Besides expanding ASAP, CUNY will also embark on the ultimate proof of the ASAP concept at a single college: A campus-wide expansion of ASAP at Bronx Community College. This ambitious undertaking will aim to enroll all eligible incoming first-time, full-time freshmen into an ASAP pipeline by academic year 2018–2019 with the goal of graduating at least 50 percent of students within three years.³⁹

At full scale, ASAP will enroll around 50 percent of each incoming fall associate degree-seeking freshman class. Assuming that the program maintains a graduation rate of at least 50 percent, CUNY forecasts that the ASAP expansion will improve CUNY's overall three-year associate degree graduation rate from 12 percent to 34 percent.

In addition to serving more associate degree students, ASAP is also beginning to broaden its scope to meet the needs of students seeking bachelor's degrees. CUNY received one-year funding of \$1.4 million from the Robin Hood Foundation to adapt the ASAP model to a four-year college setting. John Jay College launched John Jay ACE (Accelerate, Complete, and Engage) in fall 2015 with a pilot cohort of 262 students. Early results indicate that ACE has the same potential to improve success rates at the senior colleges as ASAP has already manifested in the community colleges. CUNY will seek to build on this promise over the next four years.

Furthermore, while beyond the scope of this Master Plan, it should be noted that ASAP is expanding its reach beyond New York City. In the ASAP Demonstration Project, CUNY is working with MDRC and the Ohio Department of Education to support adaptations of ASAP at three Ohio community colleges. Also,

with support from the Gates Foundation CUNY and MDRC have begun outreach to other states and college systems to assess opportunities for adapting ASAP across the country.

CUE and First-Year Programming

For many years, CUNY colleges have been offering an array of support for new students, including intensive preparatory instruction in the winter or summer before matriculation, student orientation, and supplemental instruction for students once they commence their course work. This has been bolstered by the Coordinated Undergraduate Education (CUE) program, which funds initiatives to improve success rates in CUNY's developmental education programs, expand high impact and evidence-based practices in the first year of undergraduate study, and enhance academic support services across the university. From acceleration through developmental and first-year programming to undergraduate research, service learning, and academic support services, CUE initiatives utilize a variety of interventions including tutoring, mentorship and leadership programs, math boot camps, summer institutes, pedagogical innovations, and more.

In the next four years CUE will strengthen its focus on accountability, greater attention to linking resource allocation to assessment, and the use of data for decision making and planning (a continuation to the performance funding model used for CUE since 2012–2013). Moving forward, CUE is well positioned to become an even more powerful vehicle for providing coordinated, evidence-based student support programs and services across the university.

University-wide Student Support Programs

In addition to ASAP and CUE, CUNY offers a number of university-wide programs that provide students with counseling and academic support. The Percy Ellis Sutton SEEK and College Discovery (CD) programs serve high-potential, low-income students at the senior and community colleges, respectively. These programs are models of what students who may not see themselves as “college material” can achieve when they receive proper support; both programs have been shown to raise success rates among their participants.



The university is committed to continuing to improve how SEEK and CD students are served. The SEEK-CD Assessment Committee is developing freshman year learning outcomes that will be measured beginning in fall 2016. A new database will allow the university to determine if students are meeting minimum contact requirements and learning outcomes, and better measure the impact of services. In addition, a first-ever impact evaluation of the SEEK program will compare the academic performance and retention of SEEK students to similar, regularly admitted students to help estimate how SEEK affects student outcomes. Over the next four years the university will use qualitative and quantitative data from the CD Scholars program to implement best practices, and will pilot a performance-funding model at select SEEK and CD programs.

TRIO programs are federal education opportunity programs funded through five-year grants (CUNY is in the third year) from the federal government to colleges. There are currently 21 TRIO programs across 11 CUNY campuses serving thousands of the university's neediest students. Over the five-year period TRIO programs will serve almost 32,000 students and bring \$31 million in grant funding to the university and its students. TRIO includes pre-collegiate pipeline programs, support services programs in five colleges and the McNair Scholars graduate program at Hunter and John Jay. In the coming years the university will encourage the colleges to submit proposals for continued or new TRIO funding.

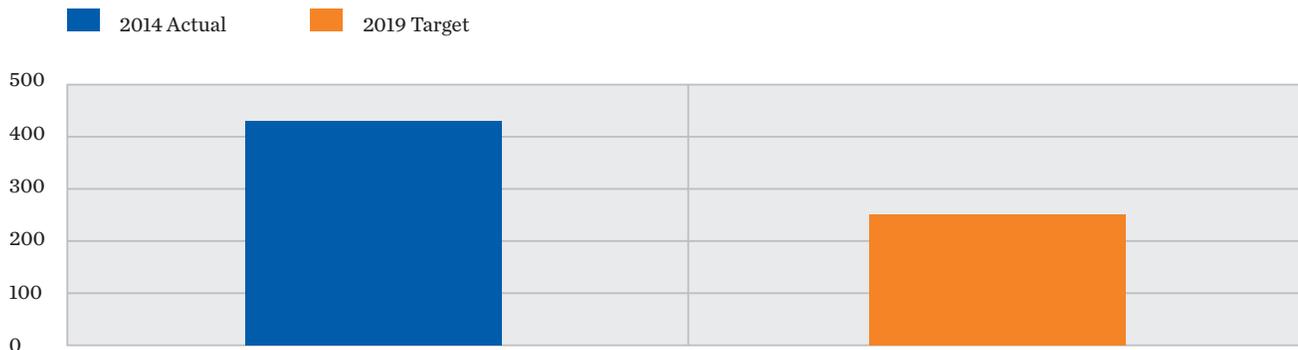
Still another program that provides support for students is the Black Male Initiative (BMI), established with New York City funding in 2005. BMI, which is open to all, seeks to promote enrollment in higher education and academic success for underrepresented students, especially men of color. The more than 30 BMI projects offer three types of activities: Recruitment, peer mentoring, and academic programming such as conferences, distinguished speaker series, workshops, talk sessions, learning communities, tutoring, and lending libraries. Evaluations of the program suggest that it is associated with higher success rates than those achieved by students with a similar profile who are not participating in the program. In the years covered by this Master Plan BMI will publish a report on its first ten years and will host a retreat to discuss future directions for the program. BMI is also exploring the establishment of a CUNY BMI Institute to coordinate research, education and constituency building in support of educational opportunity for students from underrepresented populations at CUNY.

ACADEMIC ADVISEMENT

As evidenced by ASAP, academic advisement is essential to maximizing college completion. When advisor-to-student ratios enable a measure of personal connection, students more often take the right courses at the right time making academic careers more efficient. In recent years, CUNY has been able to upgrade its advising corps in the community colleges through the expansion of ASAP (with its high advisor-to-student ratio) and by hiring new advisors outside of ASAP. At the same time, colleges have improved advisor training to ensure that academic advisors are well prepared to help students navigate the curricula of all degree programs, particularly those in the STEM fields. Since fiscal year 2014, New York City has funded 68 new academic advisors and another 24 in ASAP, increasing the number of advisors for associate degree students by approximately 38 percent. As the ASAP program continues to grow to full capacity at 25,000 students, the program will continue to add new advisors at a rate of one advisor for every 150 students. This investment will not only benefit students who are in the ASAP program. Over time, it will also decrease advisement caseloads among students who do not enroll in ASAP. From fiscal year 2014, the average advisement caseloads for all associate degree students will have dropped from 430 students per advisor to about 246 students per advisor in fiscal year 2019.

Lowering advisement caseloads helps to ensure that students can get quality, in-person academic advice when they need it, but in the foreseeable future CUNY will be challenged to provide a sufficient in-person advising corps. New technology exists that can play a vital role in supporting in-person academic advisement. A decade ago, CUNY took a huge step to improve advisement by installing Degree Works, a degree

Figure 11: Planned Decrease in the Number of Students Per Advisor (caseload) in Associate Programs



audit software program, at every undergraduate college in the system. Degree Works can provide real-time, online guidance to students and advisors regarding degree requirements and course options for meeting them. The program offers students information about pre-requisites, distribution requirements, and degree progress, helping students to plan their coursework. Students can, on their own or with the input of an advisor, develop academic plans to help keep them on track to timely graduation. Closely integrated with Degree Works is FACTS, a system that CUNY Computing and Information Services (CIS) designed and built to identify course registrations that are not eligible for reimbursement by New York State’s Tuition Assistance Program (TAP) because they do not meet a requirement of the student’s degree program.

While Degree Works provides a range of useful tools for advising, it is not being used to its full capacity at CUNY. The colleges are inconsistent in keeping the data current, and the release of Degree Works now in use at CUNY is outdated, lacking several important features from which our students could benefit. Partly for this reason, colleges have not consistently trained faculty and students to use the program. It is therefore a primary objective of the university during the next four years to upgrade Degree Works to insure the accuracy of the data it holds, and to train students, faculty, and advisors how to use it.

The work ahead will be guided by the recommendations of a university-wide committee established in 2014 to review advisement and in particular the problems associated with Degree Works. The Educational Planner function of the latest release will allow students and advisors to easily identify courses needed to meet general education, major, and elective requirements. A new feature—Transfer Finder—will provide information about how courses will transfer if students wish to move from one CUNY college to another. CUNY students will be able to see how their past coursework will count toward any major in the CUNY system and will be able to compare their remaining course requirements among a number of schools within that major. The Transfer Finder function may also assist CUNY with identifying and conducting a degree audit for reverse transfer, described later in this chapter. Finally, an additional feature of Degree Works will allow academic policy makers to project demand for courses and to plan for the right number of student places.

A Degree Works upgrade by itself will not address all of the problems identified by the committee. The committee report recommends that every college implement a standard procedure for identifying, communicating, and correcting data discrepancies in the system. Colleges need to publicize the value of Degree Works both to students and to advisors and provide training to both populations to improve their comfort level in using the application and interpreting the information it provides. Also, it will be necessary to hire an adequate number of support staff possessing the skill and knowledge necessary to code CUNY’s complex degree requirements in the software and to coordinate the program with the university’s student information system and other auditing software. As part of the upgrade CUNY will receive training for IT, registrar, and advisement staff, who in turn will be able to train other staff as well as students.



In addition to Degree Works, several colleges have invested in early alert systems. This software allows faculty and staff to identify students who are encountering difficulties in time to refer them to appropriate services such as advisement, counseling, and tutoring. Perhaps the most promising of these programs is Starfish, now in place at three CUNY colleges. Faculty can “raise flags” to let the student know about emerging problems such as lateness, inconsistent class attendance, and poor class preparation. Faculty members can also refer students to support services such as tutoring in writing or math. The system facilitates communication among faculty members, students, and support service personnel. It also closes the loop, allowing the appropriate parties to see if a particular student received the services that s/he needed.

Through a cost-sharing agreement with CUNY’s system administration, CUNY’s 11 senior colleges are poised to join EAB’s (Education Advisory Board) Student Success Collaborative (SSC) in 2016—a consortium of colleges that use EAB’s predictive model to improve retention and graduation rates. The SSC combines the benefits of data analytics, early alert, targeted communication, and academic advising to raise levels of student success. The product consists of the following components:

- Analytics (especially predictive analytics)
- Strategic intervention
- Coordinated care model
- Embedded accountability

The SSC platform draws data from the university’s student information system to identify academic characteristics that predict success in each major, and uses that information to forecast each individual student’s likelihood of success in pursuing various alternative courses and curricula. SSC presents this information to advisors to assist them in guiding students. The SSC platform makes data accessible to staff in all offices that contribute to student success: admissions, advisement, enrollment management, and student affairs.

There is no substitute for quality, in-person advising, but we live in an age when technology can reduce the effects of less than optimal numbers of counselors and advisors. As funding permits, the university will continue to hire well-trained professionals to provide the critical support that so many students need, but at the same time will monitor advances in technology that can assist a highly burdened advisement network in areas that can contribute to student success.

BUILDING ACADEMIC MOMENTUM

Simple arithmetic tells us that for most undergraduates to complete their degree on time, they must successfully complete an average of 15 credits per semester, or 30 credits per year. For most students entering associate degree programs, this is a difficult goal because so many must take at least some non-credit developmental course work, slowing their degree progress. Another issue, though, is the tendency for many capable students to take less than a full 15-credit course load. According to some reports, many academic advisors have historically encouraged this practice despite the fact that there is no evidence that students who take fewer credits perform any better than those who take 15 credits. As of fall 2015, only 40 percent of all full-time students at CUNY took 15 credits or more for the semester.⁴⁰ To change this pattern a culture shift must occur.

In the past few years, several CUNY colleges have begun information campaigns to encourage students to take 15 credits per semester or 30 credits per year. John Jay College, for example, began a *Finish-in-Four* campaign and published *Finish-in-Four* templates for each of its majors, providing students with semester-by-semester sample curricula that would enable them to complete their coursework within four years. Hunter College implemented a *Take 15* campaign that has helped to raise the percentage of full-time students who take 15 credits by about 10 percentage points over five years to 48 percent.

During registration for the fall 2014 semester, the College of Staten Island piloted a CUNYfirst pop-up message to motivate eligible students registering for 12 credits to increase their credit load. As a result, 34 percent of matriculated in-state students with a GPA of 3.0 or higher added more courses to their schedule after seeing the pop-up. CSI will continue to use this new tool for encouraging academic momentum, and plans are in the works for other CUNY colleges to begin using registration pop-up screens for the same purpose.

The College of Staten Island also encouraged summer enrollment by offering its students a “buy one, get one free” deal in summer 2015. Eligible baccalaureate students taking a course for three or more credits could take an additional course in the summer at no added cost. As a result, 629 students received a tuition waiver for one or more courses. Furthermore, 65 percent of the eligible students took two or more courses during the summer, a 30 percentage point increase from the previous summer.⁴¹

With funding from New York City, CUNY has also sought to increase summer enrollment among associate degree students by providing tuition waivers for students taking STEM courses during the summer and winter intersessions. From the inception of the program in summer 2014 through the following winter and summer, approximately 6,000 tuition waivers have been issued. The waivers have saved students about \$4 million in tuition and have encouraged the accumulation of approximately 18,000 credits.

Going forward, CUNY will build on these initiatives by promoting policies and, as important, a culture that encourages full-time students to take 30 credits per year. A version of Staten Island’s registration pop-up window urging students to take 15 credits per semester will be implemented across the university at any interested college. As part of this rollout, best practices for encouraging students to maximize their credit loads will be catalogued and disseminated. Expansion of online educational offerings, discussed below, will help in this endeavor, providing students more flexible options for pursuing a course load that will keep them on track for timely graduation.

Another priority in the next four years will be to create degree maps, that is, semester-by-semester plans for all majors in a given college for full-time and part-time courses of study. These can be static documents that simply lay out the curricula of each major by semester, or they can be interactive, online tools to understand the courses and time needed to complete degrees based on credits individual students have already accumulated. They will make the actual path to a degree transparent to both students and administrators by demonstrating how the core curriculum, major requirements, and any pre-requisite requirements can fit together on an actual semester-by-semester schedule.

Degree mapping can also facilitate the creation of structured schedules. Once the path to a degree for the most popular majors is laid out, administrators will be able to schedule courses in blocks over the course of the week. For example, required courses for psychology that are typically taken together might be scheduled in both morning and afternoon blocks so that a student can take all 15 credits in the morning or afternoon. This will facilitate the creation of student cohorts and will be especially helpful for students who have outside employment. Structured schedules can also help make course seat needs more predictable.

Although it is necessary to instill a culture in which taking 15 credits per semester is the norm, it is important to recognize that this is not a realistic course load for every student, every semester. So a sufficient number of course options and enrollment opportunities will still be available during the summer and winter intersession. That means that CUNY and its colleges will need to become more strategic about summer and winter offerings, by offering the right classes in the right numbers at the right times, exploring creative ideas to advertising offerings and attract enrollment, and continuing to promote use of the city-funded STEM tuition waivers.

OFFERING THE COURSES THAT STUDENTS NEED TO GRADUATE

A significant barrier to timely graduation for too many CUNY undergraduates is a shortage of space in high-demand courses that are required for their degree programs. It is not uncommon to hear about students who are closed out of required courses that are offered infrequently, forcing them to register for a less desirable alternative to retain eligibility for TAP, and delaying their degree progress. In CUNY's *2014 Student Experience Survey*, 34 percent of undergraduates reported that they could not register for at least one course in spring 2014, and 52 percent of these students said that the course for which they could not register was required for their major. Most often the problem was not a matter of convenient scheduling but rather that no space was available in any of the sections. Forty-five percent of survey respondents said they would like their college to offer more courses in the evening, and 36 percent indicated a desire for more weekend courses. For CUNY to truly address barriers to student success, students should be able to take the courses they need, on time and across the CUNY system, especially given the geographic proximity of CUNY's campuses and access afforded via New York City's superb public transit system.

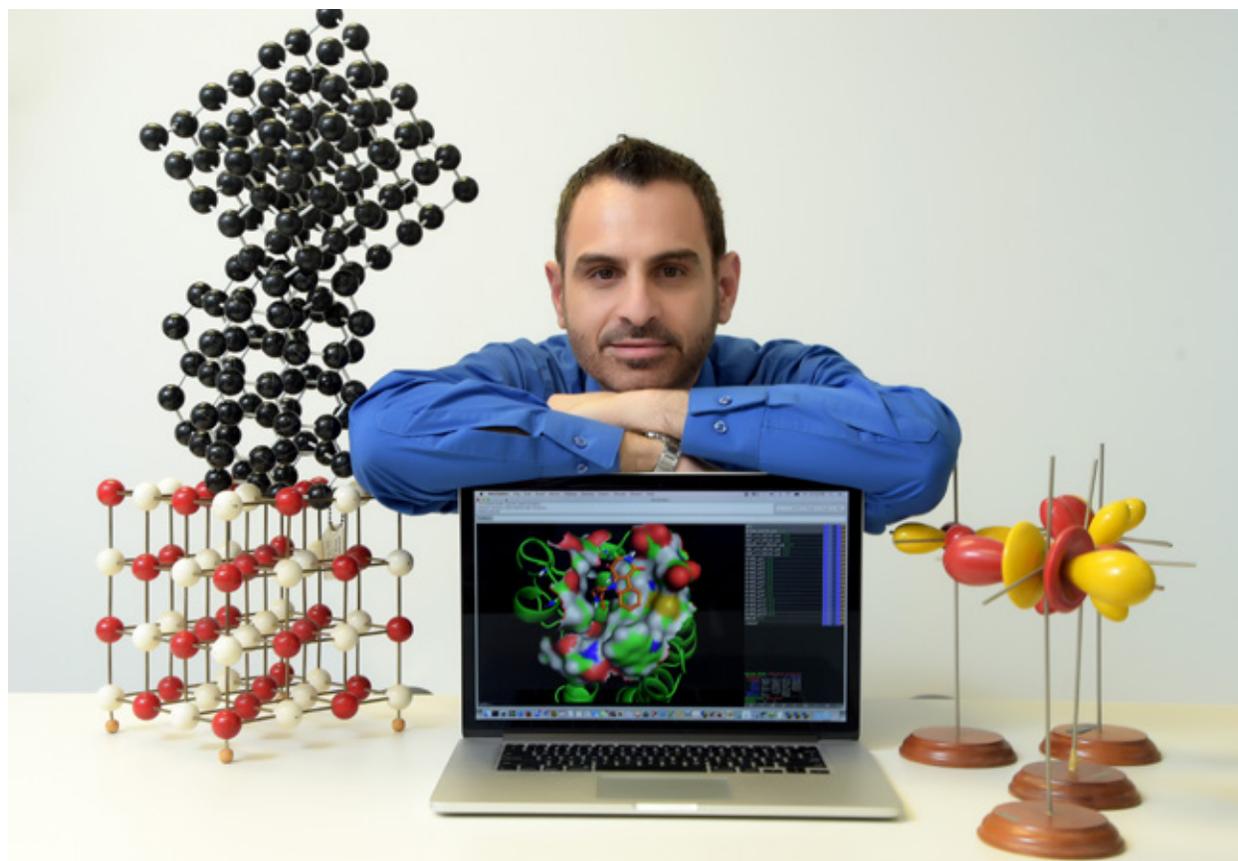
Going forward, CUNY will pursue a number of strategies to address this problem. Part of the solution is better information about course shortages and better planning to insure that sufficient sections of high-demand courses are offered at the right times, including in the evening and on weekends. Investments in course planning and scheduling software will assist departments and the academic administration of the individual colleges to match capacity with demand. The university will also leverage the intellectual resources of the CUNY system so that students can take courses within the university at colleges other than their home institution. This plan consists of three closely related components: facilitating university-wide course taking by improving the permit process, creating a university-wide, searchable online course catalogue, and expanding online course offerings. This strategy is one more way in which CUNY can become better connected to better serve its students.

University-wide Course Taking

The university offers approximately 36,000 courses each year, yet most students take relatively few cours-

es—or more often, no courses—at a CUNY college other than their own. To help students take better advantage of the diverse and rich course offerings across CUNY's campuses—which will facilitate progress toward degree completion and improve access to the world-class expertise of the entire CUNY faculty—CUNY will take steps to more thoroughly integrate its policy and technological tools for inter-campus registration.

The university has long had a process in place by which students could apply to take courses at a CUNY college other than their home college. Students would apply for permission to take courses elsewhere and this process was referred to as the “permit” process, which was converted to an online application and approval process called ePermit. The ePermit system allows students from any college to register online for a course at another CUNY college. Students may need or desire to take a course at a college other than their own for several reasons. The most obvious, as discussed, is when a course is unavailable because of space limitations. Taking the course elsewhere may be the only alternative. Other courses, such as a study abroad opportunity or an online course, may be offered at only one college. For example, ROTC military science courses are offered only at York College and City College. The ePermit system opens these opportunities to all CUNY students. For many students, use of ePermit is occasional, but others must use it regularly. Students in the Macaulay Honors College, for example, are expected to take courses at a number of CUNY colleges and therefore rely on ePermit to do so. Students in the CUNY BA program (CUNY Baccalaureate for Unique and Interdisciplinary Studies) work with faculty mentors to design their own BA or BS degree, and use the university as their campus. Interest in interdisciplinary studies and in new individualized concentrations is on the rise nationwide and at CUNY. The solution cannot be for every college to offer every course or course of study a student might need or want. To meet the needs of today's students and leverage the strength and diversity of our interconnected system, CUNY will ease the path for students to enroll in the courses they want, plan their best academic programs and graduate on time.

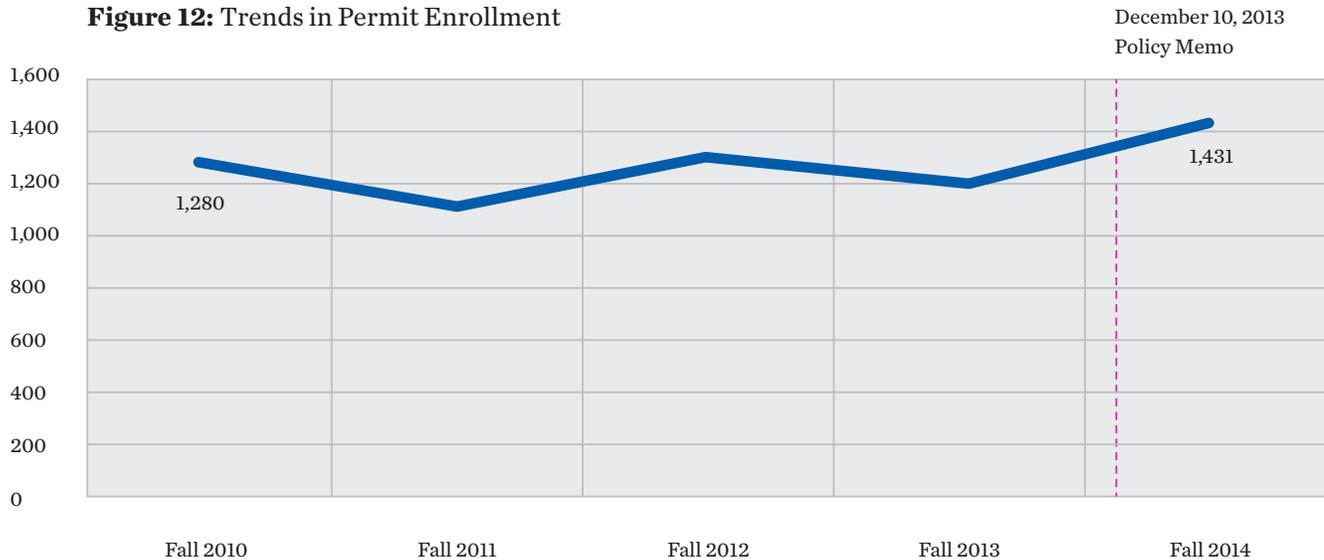


For many years, ePermit procedures were widely regarded as cumbersome and, according to some, unworkable. To address these problems, a committee of college provosts revamped the ePermit policies in 2013. The overarching principle of the new policy was to guarantee reciprocity among all CUNY colleges for the benefit of all of students. Colleges could no longer unilaterally block their own students from taking courses at other CUNY colleges, nor could they prevent students from other CUNY colleges from taking their courses. Specifically, the new policy:

- Guaranteed the ability of ROTC, CUNY BA, and Macaulay students to take courses on ePermit;
- Prohibited restrictions on the number of ePermit courses that a student can take beyond residency requirements;
- Enforced faculty pre-determined equivalencies to eliminate department-level approvals at both the sending and receiving colleges;
- Granted ePermit students the same registration priority as other students at the receiving college with the same class standing (freshman, sophomore, junior, senior); and
- Set up a procedure to exempt specific courses from the ePermit policy in extraordinary circumstances.

Although these policies should have cleared the path for students to leverage CUNY’s assets for their course needs, they were at first insufficiently publicized and poorly enforced. There was an increase in ePermit enrollment in the fall semester following issuance of the new policy, but the extent to which the new policy contributed to this rise is unclear. In the future, permit enrollments will receive a boost from a new, easy-to-use global search tool, described below, that was put in place in summer 2016.

Figure 12: Trends in Permit Enrollment



Going forward, the policy will be enforced and better communicated so that students understand their prerogatives. To inform outreach efforts, students will be surveyed to gauge their familiarity with the permit option and the university will conduct focus groups with students who rely on ePermit. Additional policy or procedural changes, as well as a communication campaign targeted to students and their advisors, may be recommended based on the outcomes of the focus groups.

Global Search: CUNY's Online Course Catalog

Currently, a student wishing to find courses to take on permit must search each college catalog and in a separate step, determine whether the course is being offered that semester and if so, when. Next the student must apply to take the course through the ePermit system, which verifies permission for transfer credit if the school offering a course is not the student's home college. Needless to say, this is labor intensive. CUNY has just removed this barrier by creating an online course catalog that will allow students to search the offerings across the university. Colleges will be able to use this portal to monitor availability as well as student demand, and appropriately address the gaps and needs that emerge. Courses will be searchable by a number of attributes including college, subject, discipline, general education category, scheduling, and whether available partly or completely online. Students will be able to determine whether seats are available as well.

Expanding Online Instruction

By offering more instruction online, CUNY can not only expand access and grow enrollment, as noted in Chapter 2 but also improve graduation rates by accelerating credit accumulation. By going online, CUNY can make instruction more convenient for students whose schedules are framed by work, family, and other constraints and, equally important, ease the limited capacity in key courses. Online educational opportunities can help students develop skills of computer-mediated communication, web-based research, and online collaboration as a means to enhance students' digital literacy. Online education has grown slowly at CUNY over the past decade and a half, but recently the pace has begun to accelerate, and the university has made important investments in the infrastructure needed to move forward.

One such investment is an enhancement of CUNY's technology infrastructure and software to better support the development and delivery of web-enhanced, hybrid, and online instructional opportunities. The university's online learning management system, Blackboard, has been upgraded to version 9.1, with improved tools for fostering and monitoring student engagement. Bolstering Blackboard with third-party learning tools will make the platform increasingly useful—for example, a recently installed add-on called *Turnitin* not only checks for originality of student submissions but also offers online grading and feedback tools to engage students. CUNY is committed to streamlining the process of adopting third-party enhancements for Blackboard and to continually evaluating and improving the Blackboard online learning environment in general. Just as important as technology upgrades is professional development of faculty. Through the *Hybrid Initiative*, the university has taught faculty effective course design and pedagogical strategies for delivering instruction online. To make further progress, CUNY will hire instruction designers and implement a university-wide program that engages faculty across disciplines, creates a baseline of readiness and support, and encourages collaboration and sharing of ideas.

Several CUNY colleges have now begun to offer fully online degree programs. Through its *2016 Strategic Investment Initiative*—the allocation of performance funds provided by New York State and the university—CUNY invested \$7.5 million to support projects at 12 CUNY colleges focused on expanding online instruction. With these funds:

- City College will create infrastructure for and offer fully online degree programs to students for whom regular attendance at on-campus classes is precluded by various circumstances;
- John Jay College will establish, online, an undergraduate degree completion program, two masters programs, a sub-set of high-demand courses, an intensive faculty development program, and a tool kit for CUNY colleges to help increase collaborative efforts to advance online education;
- Bronx Community College will expand its digital footprint so that students will have more online course options including more substantial and diversified course offerings.

These programs and online initiatives at other CUNY colleges that received funding from the Strategic Investment Initiative are currently in various stages of implementation.

The clear leader in expanding online instruction at CUNY is the School for Professional Studies (SPS). At SPS, online education has developed rapidly, with 12 fully online degree programs currently available—eight undergraduate and four graduate programs. SPS bachelor's programs were recently ranked number one in New York State and number eleven in the nation by *U.S. News and World Report*.

While “academic momentum”—continuous accumulation of credit—bears on all stages of a student's academic career there are especially important points of opportunity presented by online instruction. By taking advantage of these opportunities CUNY can help students can get a jump start on college instruction, use summers between academic years to accumulate needed credit, and take required courses that might create bottlenecks because they are unavailable at their home campuses. In this context CUNY is considering the following initiatives over the next four years.

- Creating an Online Associate Degree. SPS offers nine online bachelor's degree programs but CUNY offers no such program at the associate degree level.
- Maintaining academic momentum with online summer session courses. This will allow for a flexible schedule at a time when so many students work.
- Making general education courses available online university-wide. Especially in the “Required Core” (English, math, and science), general education courses can be bottlenecks for students, since these courses are not only required but are also in high demand.

In a major contribution to the latter goal, SPS is embarking on a project to make general education courses available online to undergraduate students across CUNY. Online Common Core courses at SPS are already in place and approved for CUNY-wide transfer—the project will scale those offerings dramatically and make their availability known to prospective students throughout the university. They will also develop a cadre of faculty who will teach multiple sections of these courses. Access to the Online Common Core will be through the new searchable portal that links students directly with registration. Once registered, students will be supported by orientation and advisement designed specifically for them.

Enhancing Education with Technology

In response to increasing demand for mobile technology and remote access, CUNY has taken steps to expand resources in the CUNY Cloud. The *CUNY Virtual Desktop Initiative (VDI)* is the first significant academic deployment, enhancing the user's computing experience with anytime, anywhere access to selected high-end, costly university software so that students and faculty no longer need to go to campus labs or purchase the software themselves. VDI commenced with a limited rollout of software applications in spring 2016 and will expand upon those applications going forward. Eventually, the CUNY Cloud will be used to host virtual lab capabilities, allowing the student to perform experiments and create models in a simulation environment from any computer.

In another enhancement, Microsoft's Office 365 ProPlus software is now deployed to students, faculty, and staff. Office 365 provides students with email accounts, and faculty, staff, and students will be eligible for up to 15 downloads of the software suite including Word, Excel, PowerPoint, OneNote, and 1 terabyte of storage. This will provide more opportunities for online collaboration among users.

Additionally, CUNY has taken a number of steps to support the academic enterprise with technologically advanced resources. For example, the university has established enterprise site licenses for software, such as MATLAB, SAS, SPSS, reducing costs for colleges and enabling access for students and faculty. In 2014, CUNY opened its first virtual bookstore for John Jay College, which integrates with CUNYfirst, allows fast

access to books in a variety of formats at competitive prices, and complies with the Higher Education Opportunity Act for textbook reporting. Four other colleges have now signed onto the John Jay contract, and CUNY has put out a Request for Proposal for new university-wide virtual bookstore options. CUNY is also making accessible technology a priority, establishing a task force to evaluate the state of accessible technology and developing a set of recommendations to make course content and technologies more accessible.

THE PATHWAYS INITIATIVE

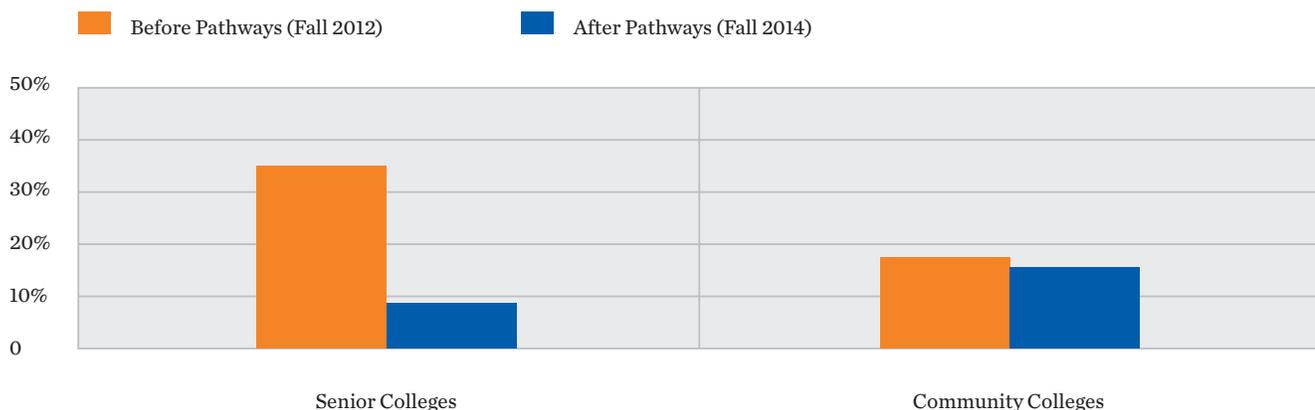
In fall 2013, CUNY implemented the Pathways initiative across its undergraduate colleges. Pathways speaks directly to those parts of the CUNY mission that state that the university is an “integrated system” and that it must “maintain its close articulation between senior and community college units.” It also speaks to the “special needs of an urban constituency,” for it ensures that CUNY students can carry credits from one college to another, thus facilitating degree completion, and helping students advance toward a career and financial stability.

A central feature of Pathways is a new general education framework with three elements. The Required Common Core, the Flexible Common Core, and, for students in bachelor’s degree programs, the College Option lays out requirements that undergraduate students across CUNY must meet. Pathways guarantees that all courses completed for credit at one CUNY college will be accepted for credit upon transfer to any other CUNY college. This applies to all three components of the curriculum—general education, majors, and electives—and to all students, regardless of the type of degree program they are transferring from, the type of degree program they are entering, or whether they have earned a degree prior to transfer. There is substantial flexibility in the Common Core framework, thus enabling each CUNY college to maintain its distinctive character.

Effects of Pathways

Two years after the initial implementation of Pathways, CUNY offered more than 16,000 sections of Pathways courses (45 percent of total undergraduate courses taught in fall 2015) and 85 percent of all degree-seeking students were following Pathways. This included 79 percent of those enrolled in baccalaureate degree programs and 93 percent of those enrolled in associate degree programs. Assessment of the early impact of Pathways suggests positive results for students. Further analysis reveals the following trends that will be monitored closely.

Figure 13: Percentage of Transfer Students with at least One Course Not Accepted for Transfer Credit Before and After Pathways Initiative



- Course taking patterns by discipline have remained fairly consistent, with some increases in enrollments in humanities, mathematics, natural sciences, and social sciences.
- The number of students transferring into CUNY's baccalaureate programs increased by 11 percent between academic year 2013-2014 and academic year 2014-2015.
- Basic student success indicators remained consistent. Among first-time freshmen entering CUNY in fall 2013 the average GPA after one year and average credits accumulated after one year remained consistent with those entering in fall 2012.
- Finally, in the most significant finding to date, the data suggest that transfer students are now far less likely to present courses that transfer but are not counted by the senior college toward degree requirements. Since Pathways, the number of students who upon transfer from both outside and within CUNY have credit-bearing courses classified as non-contributory has declined university wide. In fall 2014, only 12 percent of newly admitted transfer students presented at least one credit-bearing course that did not satisfy any of the degree requirements, compared with 30 percent in fall 2012. The most substantial decline can be observed in the senior colleges, where the number of students with this experience plummeted from 35 percent to less than 10 percent.

Assessment and Fine-tuning of Pathways

According to the board resolution that created Pathways, the initiative must “be reviewed and evaluated each year for three years beginning in 2013, and every three years thereafter.” The first-year review resulted in three changes to provide more flexibility in implementation and to give faculty governance greater influence over the process for approving common core courses. For the second-year review, a faculty committee assembled quantitative information as well as feedback generated from several constituencies including campus-based Pathways liaisons, faculty and students. The second-year committee released its findings in summer 2016. The third year review process is being formulated and work will begin after the completion of the third year of Pathways. Following year four, CUNY will seek a complete review, assessment, and evaluation by a team of external evaluators.

In the meantime, CUNY will conduct its own review to understand the academic and cultural impacts of Pathways and to fine tune policy and procedures, implementation, and ease of transfer. Student learning outcomes in Pathways courses will be monitored and reviewed to ensure compliance and identify issues that may affect student success. Additionally, the Pathways website will increasingly be used as a tool for raising awareness about Pathways among students, faculty, and staff. CUNY's Office of Academic Affairs will also support assessment of the student learning outcomes in the common core, prepare educational materials about transfer for use in orientation, and streamline the review of Pathways appeals at the campus and central office levels. Tracking and reviewing claims of noncompliance and designing a protocol for ensuring compliance across all aspects of Pathways, including Pathways in the majors, will also be a priority. Finally, CUNY will work to ensure that common core and major gateway courses have gone through the appropriate approval channels, and that proposed changes to degree programs and college-wide academic policies are consistent with the Pathways promise.

REVERSE TRANSFER

In fall 2015, CUNY inaugurated a university-wide “reverse transfer” process, whereby students who transfer from an associate program to a bachelor's program without the associate degree in hand, will be able to transfer courses back and be awarded the associate degree. The new reverse transfer program will help students obtain a credential that they have, in fact, earned, and which could be of professional and academic value to them. Further, reverse transfer could lead to improved graduation rates at the community colleges, and would allow for greater recognition of the educational opportunities these colleges provide.

Even as the system-wide process rolled out during the 2015-2016 academic year, existing reverse transfer programs at several CUNY colleges are already yielding results. In 2013, a pilot initiative was launched by colleges in the Bronx, to award qualified Lehman College students with associate degrees earned since transferring from Hostos Community College and Bronx Community College. The same year, colleges in Queens also began awarding associate degrees to Queens College students who completed necessary credits since transferring from Queensborough Community College. These pilot programs helped inform plans for the CUNY-wide program that launched in spring 2016. To date, 237 degrees have been awarded.

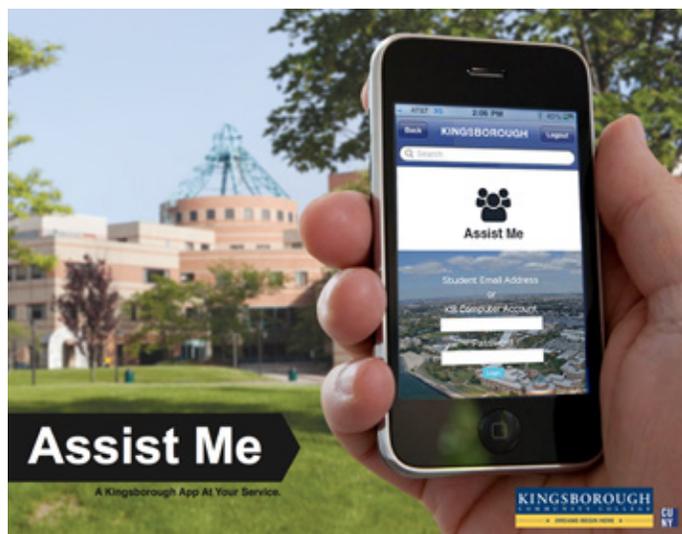
Additionally, CUNY’s comprehensive colleges are particularly well-positioned to award en route degrees through a reverse transfer program because most of their associate degree programs articulate perfectly to a related bachelor’s program. Under the direction of an appointed task force, in the coming year CUNY will extend reverse transfer capacity to all of its campuses, and implement the necessary administrative and technical support to make this change in support of our students.

FINANCIAL SUPPORT FOR STUDENTS

CUNY students come predominantly from families of modest means, as noted earlier. One indicator of CUNY’s dominant role in providing access to higher education to low-income New Yorkers is that CUNY enrolls 66 percent of all Pell recipients attending college in New York City. Because CUNY students are particularly vulnerable to disruption of their academic careers due to economic circumstances, an effective set of financial supports is essential to improving completion rates at CUNY. The most important support for students of limited means who live in an expensive city is modest tuition. Certainly, the university will make every effort in the years ahead to keep tuition affordable, a goal that CUNY recognizes depends on the efficient operation of the university, but also on adequate support from New York City and New York State.

Assist Me: An App for Navigating KBCC

Kingsborough Community College’s “Assist Me” app launched as a pilot for fall 2015 freshman students to help them navigate college life by providing access—at the touch of a button—to resources like emergency food, tuition, transportation, and textbooks. Hundreds of students have sought support using the app since its launch in September 2015, contributing to their academic and personal well-being throughout the 2015-2016 academic year.



Tuition

With tuition rates of \$6,330 per year for state residents enrolled at the senior colleges and \$4,800 at the community colleges (as of fall 2015), CUNY is the most affordable quality undergraduate choice in the New York metropolitan area. The university is committed to ensuring that its tuition will continue to be modest for the majority of CUNY students. In the last academic year, some 170,000 CUNY undergraduates received a total of \$770 million in need-based federal Pell grants and New York State TAP awards. This critical aid allowed approximately 100,000 students—more than 58 percent of CUNY’s full-time, undergraduate population—to attend college tuition-free, and even more were able to receive the same tuition benefit by combining their eligibility for partial Pell and TAP with federal tuition tax credits. In addition, the state law provides that all students fully eligible for TAP receive a tuition credit for the full amount of any tuition increase when the overall tuition exceeds \$5,165. The cost of these waivers totaled approximately \$50 million in fiscal 2015 and is expected to cost \$49 million in fiscal 2016. Tuition payments, however, are only one aspect of the cost of attending college. CUNY offers a number of additional financial supports to our students.

Single Stop

A particularly effective support program, now in place at CUNY’s seven community colleges and at John Jay College, is Single Stop. The program, which is free to the student, was initiated at CUNY in 2009 to increase the retention of degree-seeking, low-income students by connecting them and their families to untapped government benefits and services for which they are eligible. Counselors use a computerized screening tool that condenses thousands of pages of eligibility rules into a 15-minute question-and-answer session. Single Stop counselors interview students and provide them with information about which federal, state, or local benefits they are eligible to receive. They use a software program that screens for more than 40 public benefits—health insurance programs, nutrition programs, housing assistance, subsidies for childcare, energy assistance—as well as tax credits. The campus-based Single Stop counselors then use this information to guide students through the process of applying for benefits. In addition, Single Stop provides free, on-site tax preparation services during tax season (January through April); one-on-one financial counseling throughout the year; and legal services. Between 2009 and 2015, CUNY Single Stop sites served almost 75,000 students and accessed benefits, legal services, financial counseling, and tax refunds valued at \$178 million. A preliminary assessment conducted at LaGuardia Community College has suggested that students who received Single Stop services have a higher retention rate than those in a comparison group. CUNY hopes to extend the Single Stop program to more senior colleges during the period of this Master Plan while lobbying for funding to sustain the program at the community colleges.

SCHOLARSHIPS

Federal and state financial aid typically offers the most substantial financial assistance for those who qualify. But scholarships awarded on the basis of need or merit are a critical component of the financial safety net for CUNY students. CUNY colleges have stepped up their institutional advancement activities over the past decade to create and enhance local scholarship funds that students can use to pay for tuition, fees, books, and other special expenses, including study abroad, as with the Macaulay Honors College Opportunities Fund mentioned in Chapter 2. Three scholarship programs warrant specific mention—two are new and significant CUNY-specific programs, and one is a national program that CUNY students have benefited from tremendously in recent years:

Guttman Transfer Scholarships

In 2013, the Stella and Charles Guttman Foundation donated \$25 million to CUNY, including \$9 million to endow a scholarship fund for academically qualified students from all seven CUNY community colleges who transfer to CUNY senior colleges (Brooklyn College, City College, Hunter College, Lehman College, and Queens College). Guttman Scholars receive up to \$4,000 paid over two years. The scholarships are offered twice each year, in the fall and spring. The inaugural class of the scholarship’s recipients began their

Helping Dreamers Get a College Degree



TheDream.US Scholarships

TheDream.US is a national scholarship fund for DREAMers, immigrant youth who are eligible for Deferred Action for Childhood Arrivals (DACA) or Temporary Protected Status (TPS) and who “without financial aid cannot afford a college education that will enable them to participate in the American workforce.” Scholarships of up to \$25,000 for two or four-year degrees are offered to DREAMers through this fund. Since 2013, TheDream.US has awarded approximately 900 scholarships, with nearly 400 of those going to CUNY students. CUNY began its partnership with TheDream.US in fall 2013 when 30 students received scholarships to attend three community colleges. In 2014, Chancellor Milliken expanded the scholarship’s reach throughout the university’s 12 senior colleges and seven community colleges. That fall, 231 CUNY students—nearly 50 percent of students awarded scholarships nationwide—accepted their scholarship awards. In early 2015, CUNY again led the nation, when another 106 students accepted their scholarship awards—bringing total enrollment of TheDream.US scholarship recipients to more than 300 across the university. The most recent scholarship round closed in spring 2016, and the newest scholarship winners will be announced by the end of the semester. CUNY is looking forward to welcoming more scholarship recipients in fall 2016.

first semester in the senior colleges in fall 2014 and, since then, 205 students have been named as Guttman Scholars. Based in part on the success of the Guttman Transfer Scholarships in retaining our strongest associate degree holders at CUNY, CUNY will launch a new merit transfer scholarship program that creates incentives for more students with associate’s degrees to complete their bachelor’s degrees at CUNY’s senior colleges.

NYC Council Merit Scholarships

The New York City Council Merit Scholarship rewards New York City high school graduates who have proven their ability to succeed academically while they were in high school. Scholarship recipients typically receive \$800 per year (\$400 per semester). So far, \$14 million has been awarded.

These are just three of many scholarships that can help alleviate expenses for CUNY students. A goal for the next four years, and beyond, is to provide better information for students about scholarship opportunities, to ensure that available funding does not go unused.

STUDENT ENGAGEMENT

“Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. [It is] predicated on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise disengaged.”⁴² At every level of education, including post-secondary education, higher levels of student engagement result in better learning outcomes⁴³ and higher retention.⁴⁴ Engaged students are more likely to be involved in their studies, will persist despite obstacles, and will overcome these obstacles to progress toward degree completion. Students are particularly engaged when they are involved in learning activities that they find rewarding and meaningful, and when they can incorporate the material they are learning into their lives.

There are a number of “high-impact practices” that education research suggests increase rates of student engagement, retention, and thus degree completion, especially for students from underrepresented groups. These include first-year seminars, learning communities, collaborative assignments, undergraduate research, global learning, service learning, and internships. For many low-income, first generation students, college is an alien environment. These and other high impact practices, along with appropriate interpersonal interactions and extracurricular offerings, can help mitigate this alienation and foster student engagement, which in turn will encourage students to invest in their learning and to progress toward a degree.⁴⁵



Experiential Learning

Experiential learning is a high-impact practice that connects students to the city and neighborhoods in which they live. It encompasses service learning, community-based learning, internships and externships, and other forms of hands-on experiences that take learning beyond the classroom. These experiences have been an important aspect of education at CUNY in many programs, at many of our colleges. Now, in keeping with the 2015 New York State Experiential Learning law for CUNY and SUNY, CUNY has moved to expand access to experiential learning opportunities. In the summer of 2015, Chancellor Milliken appointed a task force to lead the development of CUNY's university plan for experiential learning. The plan focuses on supporting strong experiential learning opportunities (ELO) for students, including work with employers and other external partners, and tracking and reporting of these opportunities. It will enable the university and the colleges to build upon existing infrastructure and processes to further integrate experiential learning into the student experience. The following are just some of the activities CUNY will initiate to implement this plan. In the coming year the university will:

- Work with college leaders and faculty to identify coursework-based models of experiential learning that have potential to be scaled to serve more students.
- Hold an annual conference at which CUNY practitioners of ELO can present their work and share outcomes and ideas for collaboration.
- Implement an ELO Grant Program under which faculty can apply for modest, competitive grants to enhance their work related to ELO.
- Launch a university-wide communications campaign focused on “Getting more out of your CUNY degree,” that will help to establish experiential learning in the minds of students as a way to acquire marketable skills and engage with the city and industry.
- Explore flexible ways of offering high-impact programming outside of the regular academic calendar, such as during January intersession and summer session.
- Develop a university-wide plan to provide financial support that builds on successful initiatives.
- Strengthen sector engagement to increase the numbers of experiential learning experiences for CUNY students, and to ensure both the quality of those experiences for students and the alignment of the experiences with sector partner needs.
- Integrate opportunities for faculty to gain exposure to current practices in their fields of interest and build long-term relationships with practitioners.

The university plan is a valuable framework for elevating the important role of experiential and applied opportunities as part of the college experience. Along with the expansion of experiential learning opportunities for students, CUNY will create significant additional opportunities to participate in other high-quality, high-impact practices. The university will also expand proven models of excellence in this area, including the CUNY Service Corps.

Student Services

Student services and student life are important ingredients of student success. Research by Webber and Ehrenberg (2009) indicates that expenditures on student services are associated with higher retention and graduation rates, and these effects are greater at institutions that serve low-income students.⁴⁶ Earlier in this chapter it was noted that while CUNY students have come to resemble more closely “traditional” college students in some respects, they are nevertheless quite different in others. In particular many of our students are new to the United States (children of immigrants or immigrants themselves) and/

or new to the college experience. To be sure, our students differ along almost every conceivable dimension. Many of these students, even those who are academically well-prepared, need help navigating their college experience, finding the services they need and building relationships with faculty and fellow students. Other students, especially those who are new to the American college experience, may come to CUNY with nagging insecurities about whether they belong in college and can succeed there. It is CUNY's duty to assure students that they are welcome and that the university values their contributions and potential. CUNY and its colleges must accommodate the great variety of services required by veterans, students with disabilities, parents, workers, English language learners, first-generation college students, underprepared students, and academically gifted students, supporting all students on the path to a degree.

The university has a strong record of collaboration both internally and externally, to serve its many student populations with specialized needs. For example, with a five-year, \$1.75 million grant from the U.S. Department of Education's Transition Programs for Students with Disabilities into Higher Education (TPSID), CUNY is expanding its services for neuro-diverse students. Seventeen CUNY colleges have successfully obtained a U.S. Department of Defense designation of "military friendly," for implementation of services in support of student veterans. The CUNY Foster Care Collaborative has coordinated efforts among the university, community-based organizations, city agencies, not-for-profits, and foundations to help students in foster care transition to college. Additionally, CUNY coordinates system-wide Title IX training on issues related to sexual violence. The University is deeply committed to providing clear information on how to report incidents of harassment and sexual violence and ensure prompt and sensitive investigation of all complaints. CUNY also places the highest priority on educating students about their rights and responsibilities and providing prevention education programs.

Although most students live at home and commute to college, about one percent (some 3,000 students) live in campus housing. Living in a college residence hall is more than a convenience for students who come to CUNY from more distant places. It is also an opportunity to develop relationships and to become involved in another community. Looking ahead, CUNY will prioritize enhancing services for residential students. In response to feedback from the CUNY community, the university established a coordinating council to provide training for staff and create a better communal living experience. Next steps will include developing themed living-and-learning communities that create new opportunities to explore common interests. The university will also explore public-private partnerships to enhance services and expand housing opportunities, particularly for international students and students who are or have been in foster care. Housing insecurity is a significant college completion risk factor for foster care youth.

Career support is an essential element of student services. CUNY's college career centers will expand the use of digital resources to improve the flow of information about job growth areas, internships, and employment opportunities. Following best practices, career centers will hire industry-focused advisement staff and provide students and staff with up-to-date information on projected wages in specific majors, career paths by industry, and actual career outcomes for CUNY graduates. CUNY will provide professional development, create best practice guides, and institute site visits to help the colleges improve their vital connection to the labor market. The university will also be implementing an initiative to identify veterans with 45 or more credits at the community colleges and 90 or more at the senior colleges and connect them with employment opportunities in the private sector.

In addition to the services noted above, CUNY must also strengthen its support for student mental health. By implementing mobile- and web-based technologies and peer supported programming, mental health services will become more readily available for students. CUNY is working in partnership with the School of Public Health and the New York City Department of Health and Mental Hygiene to implement this platform. Additionally, CUNY will expand the use of ProtoCall, a 24/7 crisis hotline for students.

CUNY serves New York City by offering multiple points of access tailored to multiple academic needs and

interests. The university cannot accomplish its mission without effective support for transfer students, who comprise the majority of students at the senior colleges. These students need many of the same supports as do students who begin their academic careers at CUNY. They may also need additional attention, especially early on after transfer, to prevent the disorientation that can result from moving from one college to another. More focus on the needs of these students will be a priority over the next four years.

Improving “Customer Service”

CUNY’s administrative services—the registrar, bursar, admission and financial aid offices—at many colleges are a source of considerable student dissatisfaction. In a CUNY-wide Noel Levitz survey of satisfaction, students consistently rated CUNY’s student services well below national benchmarks. In open-ended comments, respondents spoke of long lines, inaccurate and inconsistent information, cross-referring without resolution of problems, and an unwelcoming attitude on the part of office staff. CUNY has many dedicated and helpful staff, but its offices are too often understaffed, and the feedback from our students indicates a pattern that demands attention from the leadership of the colleges and the chancellor.

During the period of this Master Plan CUNY aims to improve customer service. Among the elements of the work to come are the following:

- Improve integration of services via one-stop centers, in which the bursar, admissions, financial aid and information technology offices are located in physical proximity and well integrated under the direction of a coordinator so that students can be served at one time and place. CUNY will create a template for one-stops and encourage implementation.
- Provide development and training opportunities for CUNY employees to improve customer service. Cross-train enrollment management staff to extend their knowledge base.





- Improve the availability of services for weekend and evening students. Create flexible work schedules for employees to staff one-stop centers at off hours.
- Expand online services and mobile delivery of services to take advantage of our students' increasing access to and sophistication in the use of technology.
- Address common student complaints about unanswered phone calls by establishing college-based call centers. Colleges do not have a sufficient number of staff members to answer the calls to all the various student services offices. Plans include training staff and having one call center per college to answer all calls from students.
- Through professional development and standardized communications, improve the accuracy and consistency of information. Use multiple platforms, including social media, to provide students with timely, accurate, and consistent information.
- Implement a CUNY-wide email address to replace college specific email addresses that currently cause confusion when students are admitted to more than one CUNY college or transfer between colleges.
- Starting with the financial aid offices, insure consistency in the delivery of services while recognizing and balancing the needs of specific populations. Colleges have varied approaches in policy and procedure, which results in confusion—especially among transfer students and families with members at multiple CUNY colleges.

The Persistence Initiative

In addition to academic preparation and other factors, a host of personal characteristics contribute to a student's readiness for college and ultimate success.⁴⁷ As a growing literature has documented, a number of these traits are psychological. First-generation college students often feel that they do not belong in college, even if they excelled in high school. Related to a sense of belongingness is psychological resilience,

the ability to view academic challenges as a normal college experience and to persevere. Additionally, many students new to college must learn to navigate the basic landmarks of collegiate life—such as placement testing, registering for classes, applying for financial aid, consulting with advisors and faculty, purchasing textbooks and forming study groups. Researchers in psychology and behavioral economics have developed a number of interventions that research has shown to be effective in helping students adapt to the varying challenges of college, especially for students whose families lack the cultural capital associated with high educational attainment.⁴⁸

In 2015, CUNY received funding from New York City’s Center for Economic Opportunity (CEO) to pilot interventions at several CUNY community colleges and scale up the successful ones—a plan known as The Persistence Initiative. Working with a consulting firm, ideas42, CUNY is testing two mindset interventions. The first, mentioned in Chapter 2, targets student performance on the high-stakes tests that CUNY administers to incoming students in order to place them into or out of developmental instruction and introduces a priming intervention just before students sit for the tests. CUNY will couple this exercise with a campaign to provide students with more opportunities to prepare for these tests well in advance of their test date. If this intervention proves effective in improving performance, CUNY will scale the exercise to all of CUNY’s community colleges. The second project will assess interventions designed to address the mindset challenges related to belongingness that often hinder completion among CUNY students.

A second strand of collaboration with CEO and ideas42 will focus on a crucial aspect of college know-how: completion of the FAFSA (Free Application for Federal Student Aid). Most CUNY students qualify for financial aid, but in order to receive it each year, they must establish their continuing eligibility by completing the FAFSA. As many as 40 percent of first-year aid recipients do not complete a FAFSA in their second year. Many of those who do file delay their filing, thereby potentially reducing the amount of aid they can receive. CUNY will partner with ideas42 to design a targeted communication campaign to “nudge” students to complete the FAFSA as early as possible.

Study Abroad Participation

Since the last Master Plan, CUNY has made considerable efforts to expand the international education experiences available to its students. This has been driven in part by the Institute for International Education’s Generation Study Abroad campaign, which has set the ambitious goal of doubling the number of U.S. students studying abroad by the end of the decade. CUNY signed on to be part of this initiative in 2014, and has since taken measures to improve access to and quality of study abroad opportunities. A key element of this work involved implementing a single searchable portal for all programs offered by CUNY colleges, so that students can more easily find information about the programs available to them across the university system. In addition, there is now a CUNY-wide travel reporting system to ensure effective oversight of where our students, staff and faculty go abroad, for the purposes of risk management and strategic planning. These new efforts stand to provide momentum toward the ambitious Generation Study Abroad benchmarks and CUNY’s own goals around increasing global learning.

Participation in study abroad has remained stable since the last Master Plan, and primary challenges—limited financial support for students, and inadequate resources for the necessary administrative infrastructure—are the same as well. The number of students studying abroad has increased slightly since 2010-2011 (from 1,528 to 1,771 in 2014-2015), but this represents less than one percent of CUNY undergraduates. This may not reflect student interest levels, however—many CUNY students who might like to study abroad cannot afford to do so.

Overall, these study abroad statistics indicate that CUNY is not currently on track to double participation in study abroad by 2019, which is the aspirational goal set by the Generation Study Abroad initiative. But in the years ahead, the university will be working to accelerate growth in this area, and to ensure that opportunities are high quality and impactful. One area where CUNY is already showing marked success is

with performance in prestigious international scholarship programs. A new university record of Fulbright scholars was set in 2014, with 22 student and seven faculty award recipients. CUNY had unprecedented success with the Benjamin A. Gilman International Scholarship Program as well. CUNY students were awarded 21 Gilman Scholarships in summer 2015—the most of any university on the east coast, and Borough of Manhattan Community College had the most awardees of any community college nationwide. CUNY went on to sustain its East Coast lead with 14 Gilman Scholarship recipients in fall 2015 too.

CUNY's new strategic framework will call for increased study abroad as part of a new “global CUNY” initiative. Going forward, CUNY will develop strategies for making this valuable and high-impact learning experience an attainable option for more students. Increasing revenue through philanthropy for study abroad scholarships and examining new ways of integrating overseas experiences into the curriculum are two examples. Other possibilities include the posting of more detailed information about study abroad on college and departmental websites and support for faculty to integrate global learning into their syllabi.

Over the next four years, CUNY will begin to address the primary obstacle to study abroad—financial—through a few different channels. One will be establishing a scholarship fund for study abroad, to be supplemented eventually by a percentage of international student tuition revenues. Another will be exploring the feasibility of integrating CUNY's travel reporting system with CUNYfirst to allow for rigorous analysis of how international learning opportunities impact academic performance, retention, and graduation. These results can be used to seek external funding to support study abroad opportunities for high-need students. Additionally, the university will explore ways of making credits earned abroad more clearly visible to employers, graduate schools and other external audiences on transcripts. This could allow further analysis of how study-abroad experiences impact post-graduation opportunities.

Economic and Workforce Development

One of CUNY's greatest assets is its location, indeed, its ubiquity, in the most diverse and cosmopolitan city in the country. The city is our classroom, our laboratory, our campus. It is also a place where most can find the career of their choice, but there is much more CUNY can do to help our students get in the door and demonstrate their talents to employers. CUNY needs to connect more effectively with the businesses and organizations where our students want to work, and make it easier for them to connect with CUNY – for internships, jobs, life-long learning opportunities, and more.

CUNY provides affordable postsecondary education to much of New York City's labor force. As the 21st century labor market has become increasingly complex and technological advances have speeded up the pace of change in specific occupations, CUNY has expanded its services and support to students, graduates, and employers around career preparation and success, with the goals of improving job and career outcomes for students and better meeting employer needs.

A new CUNY initiative was launched in 2016 to build private sector partnerships, particularly in the tech sector, for the benefit of CUNY students and graduates. This work has led to WitNY, a promising new program in partnership with Cornell Tech, Verizon, Accenture and other companies, designed to increase the number of CUNY computer science majors, with emphasis on closing the significant gender gap and providing students with privately-funded scholarships, enhanced curriculum, and internships. Also, a new CUNY Tech Meetup already has attracted about 1,000 members and has provided students with opportunities to meet industry professionals during panels and networking sessions at Google, Facebook, Etsy, and Bloomberg, among others. The CUNY IT Internship program, a long-standing public sector internship placing computer science students in public schools and agencies, was leveraged to create a new private sector internship program that has already placed 100 students in paid internships and will expand to serve hundreds more. Finally, with philanthropic support, the university recently convened the CUNY Tech Consortium, a forum for collaborative planning and implementation of programs that prepare CUNY students for tech industry jobs.



As discussed in Chapter 2, CUNY has worked with the Department of Education to develop seven Early College & Career high schools, which support students in grades 9-14. Each school is partnered with leading employer partners in specific sectors (e. g. Energy Tech works closely with Con Edison and National Grid and LaGuardia Community College) to align the instructional program to the needs of high growth industries. These innovative programs have been praised by state and national leaders as an effective means of preparing the next generation workforce.

Over the next four years, CUNY will do the following to strengthen connections between its students and employers:

- Further expand opportunities for students to gain meaningful exposure to the workplace through such means as paid internships and cooperative education placements. Along with this, CUNY will do more to ensure that its students and graduates have both the technical skills needed for specific occupations and the cultural capital needed to navigate specific professional environments.
- Further expand the highly successful CUNY Service Corps, in which nearly one thousand CUNY students are engaged in paid civic-oriented work in more than 100 community partner organizations throughout New York City. The Service Corps, which is in its third year of operation, has assisted important organizations to better fulfill their missions in New York City neighborhoods, while also providing CUNY students with high-quality supervision, training and professional development, real-world knowledge and skills, and professional networks that will support them throughout their careers.
- Chancellor Milliken announced a new CUNY Arts Initiative in 2016, which will include the CUNY Cultural Corps, where CUNY will partner with New York City's Department of Cultural Affairs to place students as paid interns in the city's museums, studios, theaters, and other cultural institutions. The program will expose students to the rich opportunities in the arts in New York City, to introduce cultural leaders to CUNY's talented, ambitious students, and ultimately to build a new audience for the arts and diversify New York's cultural workforce. Other aspects of the initiative will include, development of new



academic programs, student internships, curriculum integration, free admission for students to cultural institutions, special tours and facilitated site visits, and a new website that will publicize opportunities for students in arts and culture institutions throughout the city.

- Intensify CUNY’s focus on serving the healthcare industry, with a particular focus on retraining incumbent workers in partnership with employers and unions. Massive changes generated by both federal Affordable Care Act implementation and the New York State Medicaid redesign process will require workers to manage a shift into community-based care, a focus on disease prevention and care management, and a shift in incentives in payments to healthcare providers. Emerging and evolving positions such as patient navigator, community health worker, and care manager are of growing importance in this new landscape, and will require new and updated training and education programs. CUNY will be a partner with the industry in training current and new workers to support this new and more progressive healthcare system.
- Work with employers, unions, and employer intermediaries to develop and update academic programs that reflect current industry needs. This will help insure that individuals move along an educational pathway at the same time as they gain skills valued by employers. New industry-aligned certificate programs and “stackable” credentials will increase access to college degrees and professional development opportunities for working adults, in particular, and improve their long-term career prospects.

Every New Yorker who desires a college education deserves the opportunity to earn a CUNY degree. The obstacles faced by any given student on the path to graduation are complex, personal, and real. It is the university’s responsibility to anticipate challenges and identify solutions, in order to uphold its mission and empower its students to succeed academically and find work that will advance their earning ability and job satisfaction. With the eclectic span of supports that CUNY has developed over time, and with an ongoing commitment to remaining inventive and nimble, there exists strong and exciting potential for increasing graduation rates in the years ahead.



Chapter 4: CUNY Will Set the Standard for Academic Quality in the Urban University

CUNY is one of the world's leading urban universities. As illustrated in earlier chapters, this distinction is due in part to its scale and to the extent to which the university is interwoven in the life of the city. CUNY provides high quality post-secondary education for students in all neighborhoods of New York City as well as to students who live outside the five boroughs and residents from abroad. This distinction is also due to CUNY's role in improving the lives of the less privileged on a vast scale through the educational opportunity it offers. Chapter 4 explores another characteristic of a great urban university—its capacity to prepare students, including traditionally under-served students, for a changing world—a world that is increasingly urban, international, and digital. Academic excellence at CUNY encompasses a wider set of goals as well. These include recruiting and supporting a talented and diverse faculty and furthering the research capacity of the whole system by leveraging recent investments. CUNY has an obligation to mobilize its intellectual resources and energy for the benefit of the larger community, whether it be in the form of economic development, addressing the great challenges of the 21st century, or identifying the most effective ways of teaching our students.

CUNY is continually updating and reinforcing its commitment to serve the special needs of its urban constituency by providing an education that will equip our graduates with the knowledge and skills they will need to succeed in the world today and tomorrow. It is a task undertaken daily by CUNY faculty—dedicated scholars, artists, and professionals who push the boundaries of knowledge and pedagogy.

By any measure of quality—faculty prominence, programmatic excellence, student and alumni accomplishments—CUNY has achieved national prominence. The university's faculty and alumni are Nobel Laureates, members of National Academies, and MacArthur, National Book Award, and Pulitzer Prize winners.

They are researchers, scholars, and creative artists. New evidence-based strategies and innovations have made CUNY a national model for community college degree completion. The senior colleges are regional powerhouses that are rising steadily in national rankings, and Macaulay Honors College competes successfully with elite private institutions for the best-prepared graduates of New York City's top high schools. CUNY offers nationally ranked programs at the master's and doctoral levels, including doctoral programs in the humanities, master's programs in fine arts and social work, and business and professional programs. CUNY's students are Rhodes Scholars, Gates Fellows, Marshall Scholars, Truman Scholars, National Science Foundation Graduate Research Fellows, and Fulbright Fellows. Graduates of CUNY go on to play leading roles in the city and state, and in their disciplines and professions.

These achievements are the hallmarks of an intellectually vigorous and rigorous institution. At the same time, CUNY must acknowledge the breadth of its mission, which encompasses the quieter achievements of tens of thousands of students who graduate each year and the work of the thousands of faculty, who contribute their expertise to the vitality of the city and to the personal growth of their students.

Adapting our Curriculum for a Changing World

One feature of an effective higher education institution is its ability to continually update, improve, and supplement the menu of courses and degree programs it offers in order to take into account the changing environment and meet the needs of prospective students. In the fall of 2012, CUNY's New Community College (now Stella and Charles Guttman Community College) opened its doors to its inaugural class. The first community college launched in New York State in almost 40 years, Guttman offers an innovative curriculum that has gained nationwide attention and praise for its structured, student-centered approach. Early outcomes for the college are extraordinarily encouraging. The first-year cohort that began at Guttman in fall 2012 achieved a three-year graduation rate of 49 percent, triple the average rate for urban community colleges nationally. Over the next four years, Guttman will conduct a rigorous assessment, generating information that will not only inform policy and practice at the college but also benefit the rest of the CUNY system.

The last four years have witnessed a number of other academic developments that underscore CUNY's responsiveness to the changing needs of the city and beyond:



- In July 2015, Governor Cuomo announced the launch of the CUNY School of Medicine, located on the City College campus. The CUNY School of Medicine builds on the strong record of achievement of the Sophie Davis School of Biomedical Education. In the past, CUNY students had to transfer to a different institution for their clinical courses. Following recent accreditation by the Liaison Committee on Medical Education, a US DOE accreditor, City College students will now be able to earn their MD at their home campus. Since its inception in the early 1970s, the Sophie Davis School has always placed a special focus on a unique patient-centered, culturally sensitive approach. It has been a leader in educating underrepresented minorities for medical practice, many of whom go into primary care and work in underserved communities. The new BS/MD program will partner with St. Barnabas Health System in the South Bronx. The first class in the CUNY School of Medicine at City College will enter in fall 2016, and from its inception, it will enroll one of the most diverse medical student bodies in the nation.
- The CUNY Graduate School of Public Health and Health Policy, launched in 2016, will bring together its resources, finances, faculty and governance, following the guidance by the national accrediting agency, the Council on Education for Public Health. It will administer all master's and doctoral degrees in public health throughout the university. Recent new initiatives in public health informatics, mental health and immigrant and refugee health, among other specialties, were launched and the school is building its reputation in public health, global health and health equity. The new school opened its home in the heart of Harlem in September 2016.
- In 2012, the CUNY School of Law moved to new quarters at 2 Court Square, in Long Island City, a location well served by mass transportation, making the School more physically accessible. In addition, CUNY's longstanding JD program has registered a part-time format, making an affordable law school degree more accessible for working adults. It is widely viewed as among the best schools for clinical education in the country and was recently named the number one public interest law school.

Additionally, since the submission of the last Master Plan in 2012, CUNY has registered about 200 new degree and certificate programs across the system in a wide variety of academic disciplines. With curriculum and courses developed by CUNY faculty, these new offerings serve the full spectrum of New Yorkers from high school graduates seeking technical training in certificate programs through undergraduate, graduate and Ph.D. programs. Within the last year, Baruch College created three new majors in data analytics: in computer information systems, marketing and marketing analytics, and information risk management and cyber security, as well as minors in marketing analytics and CIS data analytics. The new programs reflect the growing influence of big data on a number of businesses and the new competencies that are required for the high-paying jobs in those fields. Brooklyn College's new Barry R. Feirstein Graduate School of Cinema, opened at Steiner Studios in fall 2015, launched an MFA program with multiple tracks. This is the first public film school in New York, and the only one in the nation to offer courses on a working film lot. A number of other innovative programs have been created, many of which are unique not only to CUNY but to higher education in the New York City area. These include a Master of Science in Translational Medicine at City College, a Bachelor of Science in Pharmaceutical Science at York College, a Bachelor of Technology in Applied Chemistry at New York City College of Technology, a Doctor of Education in Instructional Leadership at Hunter College, a Master of Science in Disability Services in Higher Education at the School of Professional Studies, and a Master of Arts in Arts Administration at Baruch College. CUNY has also introduced new master's and doctoral degrees in healthcare fields such as nursing and physical therapy to reflect the increased licensure standards by accrediting agencies and to respond to the employment needs of the city and state.

Another notable development is the creation of Professional Master's Programs (PSM) in the STEM disciplines as well as in other applied fields, consistent with the growing nationwide interest in preparing students for advanced practice in a variety of fields where a research doctorate is not required. Chapter 2 referred to this trend (see Investing in Graduate Education) and several new PSMs under consideration

were noted. This is a trend that CUNY expects will grow; in particular the university is encouraging interdisciplinary collaborations between schools in the same college or across CUNY.

Two trends in new program proposals are apparent at the community colleges. One is the division of the large Arts and Science major into more concentrated majors to allow better tracking and advisement of students and ease transfer to senior colleges. The other is the creation of new programs in allied health, a field that continues to grow in the metropolitan area where employment opportunities are available with an associate degree credential. CUNY expects these trends to continue in the next four years. Community colleges will also take advantage of new fields recently recognized for licensure in New York State by launching new programs in these areas, such as Kingsborough Community College's new program in Polysomnographic Therapy.

A number of programs recently approved by the CUNY Board of Trustees will be advertised and will begin to admit students in the years covered by this Master Plan. These include:

- At the community college level: An AS at BMCC in Science for Health Professions; an AS at Queensborough CC in Public Health; and an AS in Exercise Science and Kinesiology at Bronx CC;
- At the senior college level: A Bachelor of Fine Arts at Medgar Evers College; a Bachelor of Social Work at Hunter College; and a Bachelor of Science in Toxicology at John Jay College;
- At the master's level: A Master of Science in Computer Engineering at City College, a Master of Science in Geoinformatics at Hunter College, a Master of International Affairs at Baruch College, and a Master of Engineering in Electrical Engineering at College of Staten Island;
- The School of Professional Studies continues to expand its online offerings with combined BS/MS programs in Nursing Education, Nursing Informatics and Nursing Organizational Leadership as well as stand-alone Master of Science programs in these same areas;
- And the CUNY Law School has joined with City College to offer a combined JD/MIA in International Affairs.

By no means is this an exhaustive list of programs that will be launched in the coming years. It is a list, however, that demonstrates that the colleges in the CUNY system are well aware of growing industry sectors in New York (and elsewhere)—areas such as technology and health—and of the increasing importance of globalization in the 21st century.

The Office of Academic Affairs (OAA) has always played a coordinating role in program development efforts to meet the evolving needs of the regional and national employment markets. The university will continue to draw on the resources of OAA, including Student Affairs, Enrollment Management, the Office of Institutional Research and Assessment and other offices of the university, to identify promising areas for programmatic expansion, at both undergraduate and graduate levels. This work will include reviewing current degree programs and their enrollment and success rates, identifying areas of emerging and expanding employment opportunities, and surveying offerings of local and national competitors. To advance these goals, OAA will:

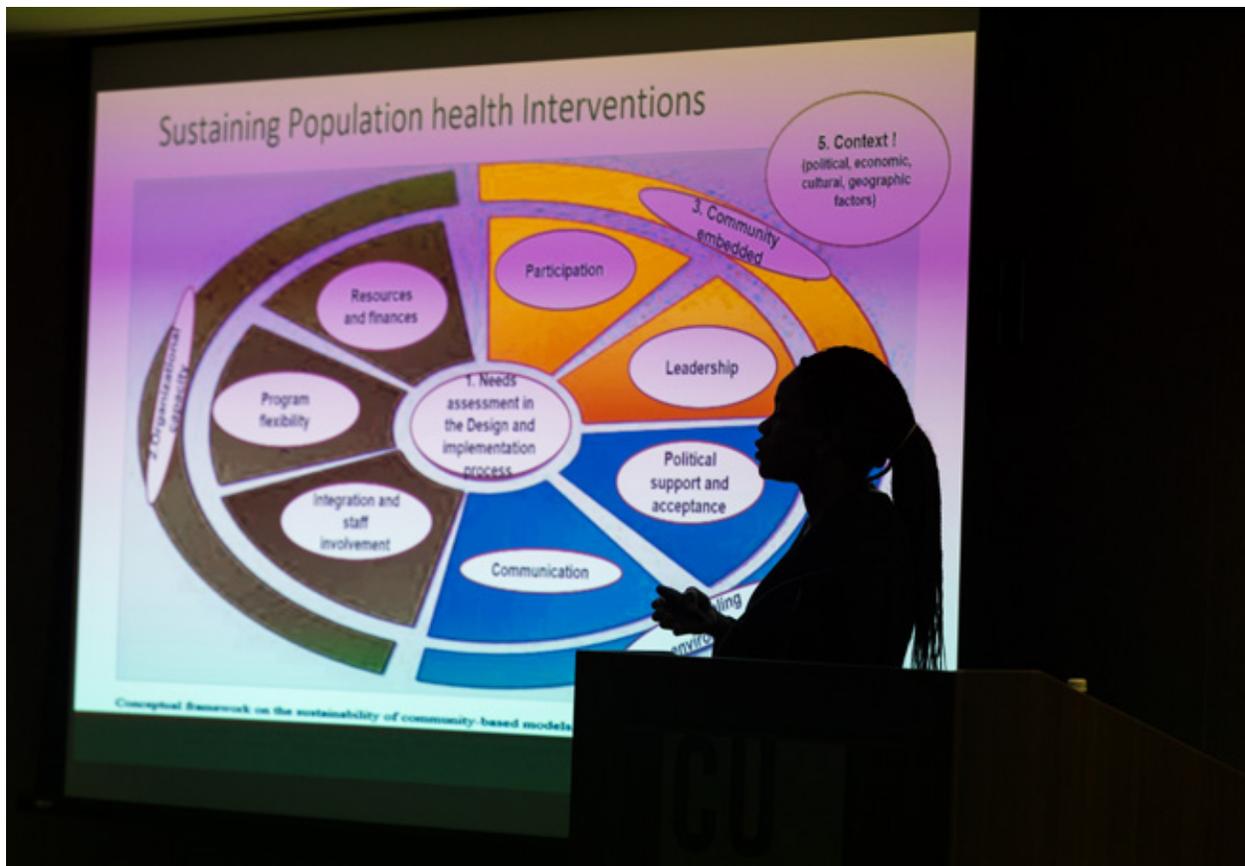
- Work with colleges to identify potential programs in areas of unmet demand and create incentives for faculty and departments to create responsive proposals. This could include workshops on program development as well as mini-grants to support program development and seed funds to launch programs determined to have high priority
- Involve centers and institutes in curricular initiatives to provide data collection and analysis, disciplinary expertise, and faculty and student support

- Aim to avoid redundancy, conserve resources, and create and sustain curricular offerings in areas that may not be feasible for an individual campus, such as interdisciplinary programs or foreign language instruction in high-need areas
- Facilitate cross-campus collaboration by providing venues for faculty and administrators to exchange ideas and work on joint projects
- Create a database of research expertise and interests to more easily identify experts and potential collaborators

One area of academic programming where CUNY will direct special and renewed attention is teacher education, the largest area of graduate study at the university and one that is vital to New York City's schools and workforce. CUNY has made considerable progress both in adapting its curriculum to meet demand and in preparing its students to meet the rigorous new standards introduced by New York State. A number of new undergraduate and graduate programs in education have been registered and existing programs have been strengthened in response to the evolving requirements and needs of both the state and city. CUNY's efforts to prepare students for state teacher certification exams address the needs of faculty in teacher education programs and of CUNY's teacher education students. CUNY has expanded professional development for faculty to improve the alignment of curricula with certification exams, and supported students through the provision of workshops, online repositories of preparation materials, instruction through continuing education, and web-based practice tests.

CUNY's work in teacher education will build on the existing foundation to improve the quality and impact of teacher preparation through a variety of strategic efforts. A focus on clinical experiences and teacher





residencies ensures that teacher candidates have an opportunity to enhance their pedagogical skills and practice their craft as effective urban educators. CUNY, through its New York Early Childhood Professional Development Institute and its schools of education, played a key role in supporting implementation of universal pre-kindergarten, training and educating thousands of both new and incumbent teachers to enter pre-k classrooms. Expanding its work in early childhood education will be a priority for CUNY. NYC Men Teach, a mayoral initiative, brings resources to CUNY to support the recruitment of male teachers of color. Graduate coursework and certificates offered online will aim to be more responsive to current teachers who may wish to learn new skills and earn additional credentials.

Connecting Curricula and the Workplace

Academic programs and the curricula must continue to be responsive to the needs of students and their prospective employers. This will mean offering more certificates and degree programs that have value in the market, as well as providing more courses designed to meet specific skills and knowledge needed in specific, targeted sectors.

Curriculum that reflects the changing technologies, policies, and context of the workplace is an essential ingredient of academic quality for vocational, technical, and professional programs. As noted above, CUNY has prioritized revamping its teacher education programs to meet new licensure requirements and to respond to the Mayor's Equity and Excellence Agenda. Additionally, CUNY and the NYCDOE share workforce data and plans to address projected shortages in content and geographical areas. CUNY embraces its role as the largest provider of teachers to the NYCDOE, and works to bolster the teacher pipeline through partnerships to support paraprofessionals, for example.

The technology sector will be another area of focus. As discussed in Chapter 3, CUNY will continue to build and support the infrastructure that it has put in place to work with the rapidly expanding tech sector, using private foundation grants to leverage the university's own investments in staff, online platforms for managing relationships with employers, recruiting and screening students for positions with these companies, and other industry and student engagement activities. New programs in cyber-security, data analytics, and software engineering and development will be a key part of this, as will programs that fully integrate coursework with on-the-job learning. Finally, CUNY will build a new Degree+ program, in which participating undergraduate and graduate students can take certification courses and exams at little or no additional cost and take advantage of internships and mentoring opportunities. Degree+ will begin in the Information Technology field, and will be broadened over time to other fields that value certifications, such as accounting, nursing, and human resources.

More generally, with support from the New York State Job Linkage Initiative, CUNY community colleges have improved the alignment of their technical and terminal degree programs with the needs of local employers. New York State's requirement that academic departments document connections to local employers has prompted CUNY's programs to ensure that their industry connections—such as industry advisory boards and collaborations with individual companies—are active. The \$2 million fund supported by the initiative has created new incentives for colleges to ensure that students stay in college and graduate on time, with the skills and knowledge required to be competitive in the local labor market. The funds awarded to CUNY's community colleges each year have supported industry-focused career advisors, labor market studies, industry engagement activities, and other important workplace related functions.

CUNY will develop deep new connections with the many cultural institutions in New York City. In 2016 the university launched the CUNY Cultural Initiative, which has already received an enthusiastic reception from partners eager to give our students new access to institutions that all too many have never visited. The first major institutions to welcome CUNY students, at no charge, were the Whitney, the Cooper Hewitt, El Museo del Barrio, the Jewish Museum and others. In the years ahead, CUNY will continue to forge new connections with New York's cultural institutions to expand arts curricula and programs and to create internship and job opportunities.

Globalizing the Curriculum

Globalization, motivated by economic forces and driven by technology and communication, is increasingly shaping the world we live in. These forces link individuals and institutions with unprecedented speed and on an unprecedented scale. It is CUNY's task to examine and understand the forces of globalization in the context of our commitment to academic excellence and our mission to provide equal access and opportunity for students, faculty, and staff. The university is also responsible for exposing students to, and helping them acquire, the knowledge and skills that employers are seeking in an ever more competitive economic environment.

Few places in the world have benefited from globalization as much as New York City. Beginning in the 1970s and accelerating in the 1990s with the advent of the internet, capital, goods, and services have increasingly moved across national boundaries. During this period, New York City became the site of growing international investment, as foreign corporations located here in growing numbers. At the same time key sectors of the local economy substantially enlarged the share of their income earned through international transactions. This was especially true for certain sectors of the local economy, including finance, law, construction, architecture, and fashion. In a parallel trend, New York City became a growing destination for international tourism. A major factor in New York City's ability to thrive at the epicenter of these trends has been its ability to attract and retain a highly educated workforce. However, looking ahead, as other urban centers in the United States and abroad become increasingly globalized, New York City will have to compete ever more aggressively for a labor force that possesses the skills and knowledge needed to function in a global economy. As a result, New York may become more reliant on a locally educated labor force.⁴⁹

New Visa Program for Immigrant Entrepreneurs



CUNY, together with the New York City Economic Development Corporation, announced the launch of IN2NYC, a new visa program for immigrant entrepreneurs which will work with seven CUNY colleges: Baruch College, City College, the College of Staten Island, LaGuardia Commu-

nity College, Lehman College, Medgar Evers College and Queens College. While advising faculty and students, 80 entrepreneurs will work to build companies on CUNY campuses, in exchange for a special temporary work visa that is exempt from the quotas.

CUNY will be expected to, and will, supply a substantial proportion of that workforce.

In this new world, if CUNY is to provide a path to upward mobility, it must extend students' awareness of the world in which they live by exposing them to the diversity of culture, action, and creativity. CUNY has a distinct advantage in this endeavor. As noted earlier, CUNY's students are steeped in diversity. Many come from immigrant households and speak a language other than English at home. If their neighborhoods and schools tend to attract people from similar backgrounds, the classrooms they encounter at CUNY are a melting pot, drawing students from all quarters of the city. This mix of backgrounds and viewpoints leads to vibrant discussions and educational experiences—important preparation for work in businesses and organizations that do many of their transactions with foreign partners and are themselves increasingly multicultural. During the next four years and beyond CUNY will consult with faculty and faculty governance to create new opportunities in and out of the classroom for its students to harness this diversity and turn it into an asset in the labor market.

Figure 14: Top Foreign Languages Spoken by CUNY Undergraduates

1. Spanish	6. French
2. Mandarin	7. Arabic
3. Bengali	8. Urdu
4. Russian	9. Korean
5. Creole	10. Cantonese

Some 40 percent of CUNY students speak a native language other than English, a great asset in a global city. Heritage speakers represent an untapped potential for reinvigorating language study and bolstering multicultural competencies. Often, however, heritage language speakers can benefit from formal instruction in their native language. In the next four years CUNY will widen the pipeline of intermediate and advanced language training for all students, regardless of linguistic background, in order to transform our students' linguistic talents into career skills.

In addition, with guidance from faculty, the university will explore new and strategic approaches to linking foreign language study with subject content areas. Plans may include developing learning communities and adapted courses toward specific majors, or areas of specialization, including graduate level courses. The structure of language programs will be revisited in light of current recommendations of the Modern Language Association (MLA) on translingual and transcultural educational experiences. The CUNY Council of World Language Study as well as the CUNY Institute on Language Education in Transcultural Context, established in 2012, will help facilitate the sharing of best practices across the curriculum, to promote learning and teaching in the context of New York City's multicultural communities." In 2014, CUNY was awarded a Department of Education Language Resource Center grant, used to establish the Center for Integrated Language Communities (CILC) which "focuses on language education in the community college context, on heritage language learners, and on the use of educational technology to foster intercultural connections." To date, the ILETC and CILC have established heritage language course tracks in nine languages at fifteen campuses. CUNY now offers instruction in 45 languages, up from 25 in 2011.

Another priority for the university in the years ahead is to create strategic partnerships with institutions of higher education abroad. These partnerships serve the university in myriad ways, creating study abroad opportunities for students, expanding collaboration opportunities for faculty, and attracting international students and scholars to New York. Going forward, CUNY will focus on cultivating new deep partnerships—each in a global city—committed to addressing the most pressing challenges of globalization and urbanization. These challenges may include areas such as: sustainable cities; inequality, access, and governance; public health, medical care, and housing; criminal justice and social service delivery; immigration and migration; and education and workforce development. The network will provide opportunities not only for collaborative and complementary research among leading scholars, but also for credit-bearing coursework, student and faculty interaction, and study and research experiences for undergraduate and graduate students alike.

CUNY has become one of two North American Universities (along with Ryerson University, in Canada) participating in WC2 (World Class World Cities) University Network, a consortium of important universities in major cities worldwide. The WC2 University Network has been developed to bring together top universities located in the heart of major world cities on different continents in order to address cultural, environmental and political issues of common interest to world cities and their universities. By providing a forum for scholars and practitioners from a range of disciplines across the world the network creates opportunities for inter-disciplinary and cross-border cooperation and possibilities for sharing urban themes and knowledge at an international level. The objective of the Network is to provide a more comprehensive understanding of world cities, their universities and how they may impact and aid each other.⁵⁰ As a charter member, CUNY is helping to advance international and local conversations about cultural, environmental, and political issues that New York City shares with other urban centers. In 2013, CUNY hosted the WC2 Network Conference at Baruch College.

Currently, CUNY is embarking on a partnership with the New York City Economic Development Corporation to launch a program that has no precedent nationwide. The plan, known as IN2NYC (International Innovators Initiative), foresees bringing 80 foreign entrepreneurs to CUNY campuses, where they will collaborate with faculty and students while working to build companies. The university affiliation will allow such entrepreneurs to be eligible for a temporary visa program exempt from quotas. The program is expected to

serve as a vehicle for entrepreneurial innovation and job creation in the city; IN2NYC is projected to create more than 700 jobs for New Yorkers in the first three years alone. It will also benefit CUNY students by linking them to some of the world's most talented emerging entrepreneurs. "Entrepreneurs must commit to support the mission of the partner school by contributing to academic research, developing curricula, providing students with internship and employment opportunities, or serving as mentors."⁵¹ Participating colleges are located in all five boroughs: Baruch College, City College, College of Staten Island, LaGuardia Community College, Lehman College, Medgar Evers College, and Queens College.

Globalization of higher education has many components. These include (but are not limited to): infusing academic content into the curriculum to raise awareness of the world and America's place in it; providing opportunities such as study abroad experiences that allow students to be immersed in another culture; and, bringing international students to our campuses. Recruitment of international students was discussed in Chapter 2 (Internationalizing Recruitment and Enrollments) and Study Abroad was discussed in Chapter 3 (Study Abroad). Going forward, the university in collaboration with the colleges, will take additional steps to encourage the infusion of global competencies in both general education and major course offerings. To help in this process CUNY will capitalize on New York City's extensive international communities by enhancing research projects, opportunities for cultural immersion, homestays, internships, and a variety of co-curricular and experiential learning activities. CUNY will also build bridges to New York City business, arts and culture, nonprofit, and community organizations interested in and committed to global issues to enhance opportunities for internships, career training, and experiential learning. As part of CUNY's overarching commitment to academic excellence, and as is necessary to prepare students for changes both imminent and on the horizon, the university will do all that it can to enable students, and faculty, to look beyond the campus to see the world.

Curriculum for a Digitized World

The first chapter of this plan noted that today's students have never known life without a computer. They multi-task between laptop, smartphone and other technologies, and spend hours on Facebook, Instagram, Tumblr, Twitter, and other virtual communities. But while they may be immersed in the 21st century social media culture they don't necessarily have the digital skills that are a fundamental literacy for successful careers in the knowledge economy.

Digital skills run the gamut from proficiency with the most-used applications—word processing, spreadsheets, Google tools, databases, etc.—to software development, financial engineering, data science, and even basic web design. While no one can predict the precise package of digital skills and computer languages that are essential for college and career success, it is important to begin with an understanding of algorithmic thinking and the relevance of computer technology to modern society. All students should be encouraged to develop an understanding of foundational computer concepts—and be inspired to think about how their own career paths will take advantage of 21st century technology. Regardless of the major discipline selected by our students, their careers will require an understanding of how technology advances their fields.

Faculty, too, will need to keep pace with the changing scope and skills associated with computer science in their own fields to ensure the curricula and assignments are aligned with current tools and pedagogical approaches. To increase the capabilities and willingness of faculty to use digital resources for learning, and to encourage curricular enhancements that contribute to advancing the digital literacy skills and knowledge of all CUNY students, CUNY will seek guidance from faculty leaders.

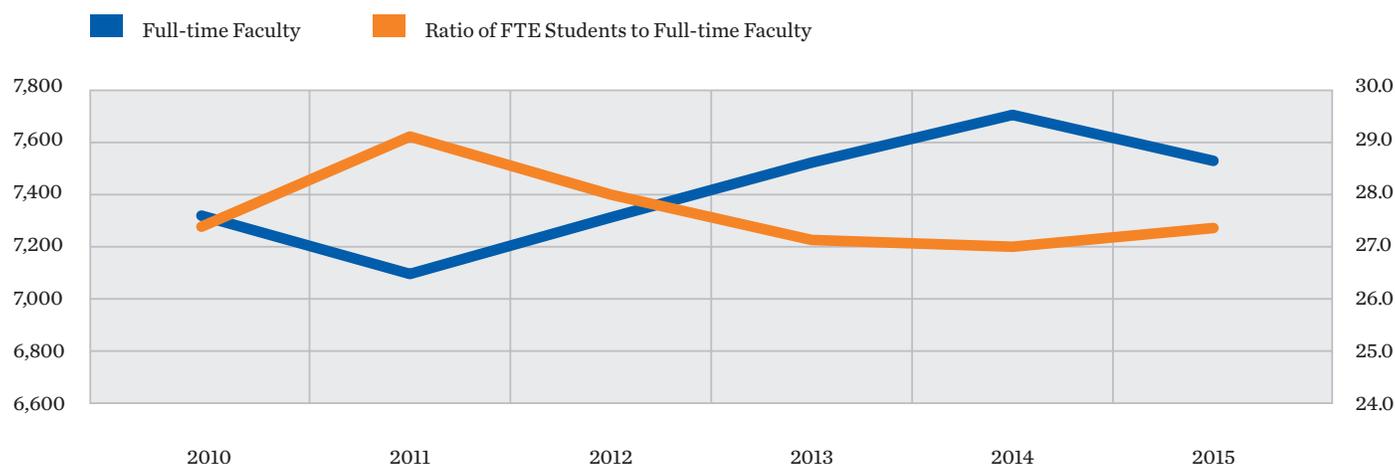
RECRUITING AND SUPPORTING AN OUTSTANDING FACULTY

None of the above is possible without the leadership and partnership of CUNY's world-class faculty. CUNY's faculty is renowned for their contributions to knowledge and creative production, and for their ability to address the great challenges of the 21st century. The power to sustain and enhance our reputation depends critically on the continuing ability to recruit and retain faculty who are both first-rate scholars and teachers of a staggeringly wide range of students.

Thanks in part to the New York State predictable tuition policy, the university was able to hire more than 1,200 new faculty between August 2011 and August 2015, increasing the ranks of full-time faculty to 7,580, up from 7,092 in 2011, just before the last Master Plan was submitted. CUNY recognizes the importance of having sufficient numbers of full-time faculty to teach, advise, and mentor students both in and out of the classroom, and is committed to advocating for greater state investment to ensure sufficient numbers of full-time faculty to serve the growing student body.

As part of a recruitment strategy, CUNY has implemented cluster hires in areas chosen for their importance to society and the economy, their relation to existing CUNY strengths and needs, and their intellectual breadth and depth. Using this model, CUNY has successfully recruited high quality faculty who are aware of CUNY's growing investments in their disciplines. These clusters include urban health, art history, the visual arts, and approximately 300 new faculty (representing an almost 20 percent increase) in STEM-related areas hired since 2005.

Figure 15: Trends in the Number of Full-time Faculty and Student FTE to Full-time Faculty Ratio



If the financial resources are available, CUNY will continue the practice of cluster hiring by investing in select areas, including those already supported by CUNY's Advanced Science Research Center (ASRC), that is, in the interdisciplinary fields of nanoscience, photonics, structural biology, neuroscience, and environmental science. The university has also targeted data science/data analytics, an emerging field of interdisciplinary research focused on creating actionable intelligence from the rich data stored in today's information systems as an area for further investment. CUNY has a breadth of expertise in this area across several disciplines, from mathematics and computer science to the humanities and social sciences. In addition, there is a High Performance Computing Center at the College of Staten Island. Through cluster hiring, the university will be better able to augment the research capacity of the ASRC and the High Performance Computing Center and better educate students in areas critical to technology and related expanding industry sectors.

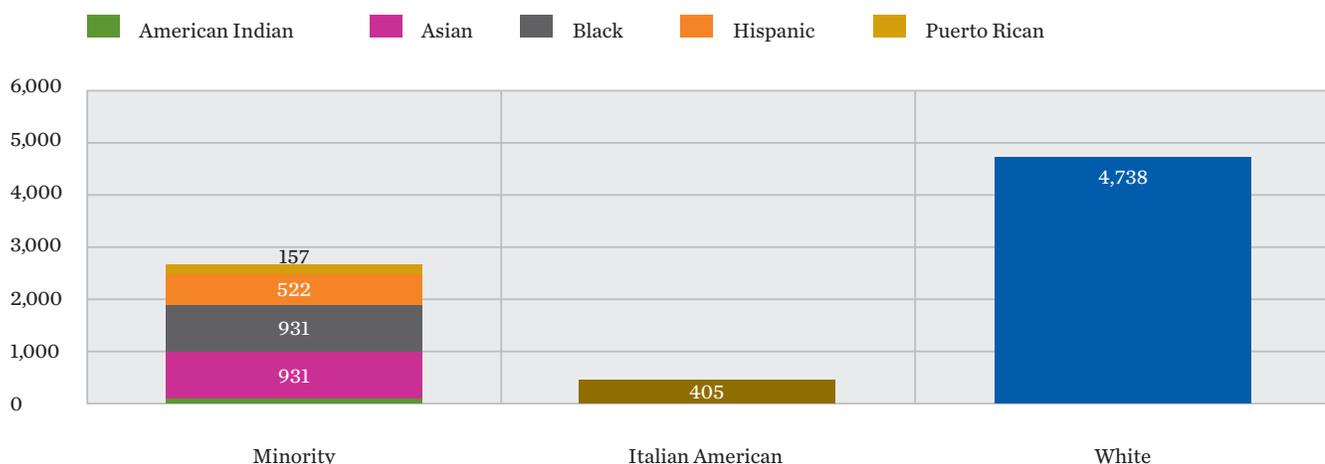
In addition to the STEM areas CUNY is also developing plans to hire faculty who are prepared to research and implement state-of-the-art pedagogical approaches, also known as the scholarship of teaching and learning. The goal is to increase the number of educational psychologists, sociologists, public policy researchers, and others whose research is directed toward understanding and addressing the educational needs of diverse post-secondary student populations.

Over the next four years, CUNY also will intensify its efforts to diversify the professoriate—one of the best ways to promote a richer learning environment for students, a respectful exchange of knowledge and perspectives, a depth and breadth of scholarly discourse, and active community engagement. To accomplish this increase in faculty diversity, CUNY will build on long-standing priorities and practices. Since the last Master Plan was published in 2012, the university has reinforced its commitment by implementing a number of new initiatives. Campus-based Faculty Diversity Strategic Plans (FDSPs), now provide guidance on recruiting and retaining faculty and improving the campus climate. In 2013 the university published a user friendly manual, *Search Committee Guide: Resources for Conducting a Successful Search*, which provides a step-by-step road map of the recruitment process, as well as information on how to encourage diversity in hiring while combatting hidden bias and providing fair and equitable treatment for all throughout the search process. A Biennial CUNY Faculty Diversity & Inclusion Conference was also instituted, featuring panels, presentations, talks and interactive demonstrations on virtually every aspect of diversity—from race and ethnicity, sexuality and gender, age, disability, language, and religion, to topics such as cultural competency, pedagogy for ESL students, and economic status and unconscious bias. The second conference, in March 2015, was attended by 270 faculty and 50 administrators. The third biennial conference is scheduled for April 2017. It will again offer faculty from across the university an opportunity to share their research, experiences, and best practices.

The results of these initiatives are encouraging. Since 2012 women’s representation among the full-time faculty has grown from 47.8 percent to 48.8 percent and the share of minority faculty has increased from 32.3 percent to 33.2 percent, the continuation in both cases of long-standing upward trends. CUNY’s work with search committees also appears to be paying dividends. A new-hire survey conducted in 2013 indicates that 91 percent of all new faculty hires, and 95 percent of new faculty hires from underrepresented groups, felt that they had been treated with respect during the search process. Over the period of this plan, CUNY will continue this progress.

In addition, two new programs will be implemented to enhance faculty diversity. The Postdoctoral Fellowship Program will diversify the pool of potential faculty and attract future leaders in their disciplines. It will

Figure 16: CUNY Full-time Faculty by Race/Ethnicity



also bring intellectual vibrancy to the classroom. Fellows will be sited at one of CUNY's senior colleges and will conduct research and teach one undergraduate or graduate level course each semester in the social sciences or humanities. Each Fellow will be assigned to a senior faculty member who will serve as throughout the appointment. The program will run for two years; the goal is to hire 15 Postdoctoral Fellows, contingent on securing external funding.

The second program, the CUNY Diversity Scholar in Residence Program (DSRP) will assist in foregrounding issues relevant to diversity within the university community. DSRP would provide a forum for an ongoing conversation within CUNY on aspects of diversity and inclusion, a conversation that would be animated by the Scholar in Residence. The Diversity Scholar in Residence (DSR) will be an academic or public intellectual who has been recognized as a vital contributor to the national debate on some aspect of diversity. The DSR will be selected based on a competitive nomination process.

The university will also continue to support three university-wide programs designed to promote diversity. The first is the Diversity Projects Development Fund (DPDF)—an initiative meant to support educational projects, scholarly research, creative endeavors, and professional activities that promote diversity, affirmative action, and multiculturalism. The second is the Faculty Fellowship Publication Program (FFPP), developed to assist full-time, untenured faculty in the design and execution of scholarly writing projects via group sessions and one-on-one meetings with an assigned mentor. And the third is the Latino Faculty Initiative that seeks to enhance the pool of applicants for faculty and administrative positions at CUNY.

In recruiting, the university has been able to attract academics drawn to CUNY because of its mission, the excellence and diversity of their prospective colleagues, and its location in a great world city. But the barriers to recruitment are not insignificant: The high cost of living in New York City, salaries that have become less competitive over the years and heavy teaching workloads. To meet these challenges, the university will aggressively support recruitment, targeting investments carefully and building on our strong record of hiring a diverse and talented teaching staff. Other efforts will include improving support and recognition for the core activities of faculty—teaching, scholarly productivity (research, scholarship and creative activity), and service to the university and community. The university will need increased funding from the city and state to meet its faculty recruitment goals.

PROFESSIONAL DEVELOPMENT AND SUPPORT FOR RESEARCH AND TEACHING

Professional development has been and will continue to be an important element of CUNY's efforts to retain and support its world-class faculty. CUNY colleges offer professional development programs that impart and disseminate information about innovative pedagogy and provide funding and other support for faculty travel, research, scholarship, and creative work. Professional development programs address a wide range of topics including tenure and promotion, grant writing, experiential learning, and online teaching, typically through well-funded and active Teaching and Learning Centers. The university has extended the colleges' efforts by providing funding in areas that are critical to faculty success. For example, by underwriting travel to discuss funding opportunities, and providing bridge funding when competitive grant renewals are not funded, CUNY supports faculty who seek external funding for their work. Additionally, to encourage faculty to take advantage of the facilities and potential collaborations available at the new Advanced Science Research Center (ASRC), CUNY provides seed funding and postdoctoral support to CUNY faculty who leverage research relationships at the ASRC. These programs enhance the research profile of the university and will be continued.

Other successful programs will also be expanded. Over the last five years, with funding from the Sloan Foundation, CUNY has provided fellowships to some of the university's most promising junior researchers in STEM fields. The fellowships allow these exceptional junior faculty members to focus on their research during the early stages of their careers. Over the next four years, CUNY will build on the success of this

Faculty Research: Grants to Enhance Student Outcomes

The CUNY Community College Research Grant Program provides opportunities for faculty to engage in research that connects directly to student outcomes. The program has two tracks: pedagogical research and mentored research experiences for students. Recent examples of funded pedagogical research projects include a multi-campus collaboration to assess the impact of service-learning on community college students led by faculty from Queensborough, Hostos, Kingsborough, and BMCC. Sociology and mathematics faculty from Kingsborough and Queensborough were also funded to investigate students' quantitative literacy. The goal of the mentored undergraduate research grant is to support faculty who can provide outstanding mentored research experiences for students.



program by making it available to talented junior faculty in all fields, including the humanities and social sciences.

The university will also begin offering a large annual workshop on pedagogy for the senior colleges, building upon one currently offered only at the community colleges. The workshop will not only provide new opportunities to exchange information about teaching techniques with peers but will also offer guidance in the conduct of pedagogical research and information about funding and publishing. In the future, CUNY will disseminate the results of pedagogical research through the existing Centers for Teaching and Learning. The university will also support publication and incentivize adoption of best pedagogical practices.

In 2015, CUNY worked with Harvard's Collaborative on Academic Careers in Higher Education (COACHE) to administer COACHE's nationally normed faculty satisfaction survey CUNY-wide for the first time. To accomplish this, CUNY collaborated with the University Faculty Senate (UFS) and COACHE to develop a survey designed specifically for community college faculty, which CUNY piloted and which COACHE is implementing nationally in 2016. Thanks to the joint efforts of CUNY's Office of Academic Affairs (OAA) and the UFS, faculty participated in the survey at a high rate, and results were disseminated among faculty at all CUNY colleges and graduate and professional schools. The survey clearly documented aspects of faculty experience at CUNY that can be improved, and the colleges have organized productive discussions among faculty and administrators to address these issues.

In December 2015, a CUNY-wide Faculty Affairs Advisory Board (FAAB), composed of faculty and administrators with expertise in faculty development, advancement and satisfaction, was established to advise OAA about the ways in which the university can provide the resources necessary to continue to attract, retain and advance an outstanding faculty, and to provide a forum for sharing best practices in faculty development across the university. With guidance from the FAAB, OAA has begun and will continue to address issues that the 2015 COACHE survey identified as pervasive, including the need for better support for associate professors. Other areas that will be addressed include: leadership development, training for department chairs, support for innovative pedagogy, especially in STEM areas, and support for the development of online courses. In addition, CUNY will increase its efforts to celebrate and award faculty excellence in scholarship, teaching, and service by expanding the number of Distinguished Professors, creating new pathways to distinction and recognition, sponsoring faculty for external recognition, creating new forms of internal recognition, and publicizing faculty accomplishments.

RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITY

Over the past four years, CUNY research, scholarship, and creative work have flourished. One indicator is the recognition that our faculty members have received. Internally, since the last Master Plan, 23 Distinguished Professors were hired or promoted in a broad range of disciplines including African history, art, criminology, economics, English, history, Italian studies, mathematics, New York City labor history, political science, physics, psychology and sociology. Externally, CUNY faculty members have received Fulbright Awards, Andrew W. Mellon Foundation Fellowships, and Ford Foundation Fellowships, among many others. Their work has been supported by numerous federal agencies including the National Endowment for the Humanities, the National Science Foundation, the National Institutes of Health, the U.S. Department of Energy and the U.S. Department of Veterans Affairs as well as many foundations, including the Carnegie Foundation, the Simons Foundation, the John Templeton Foundation and the Leaky Foundation. They have also been honored with awards and elected to leadership positions in their disciplines.

Research is critical to fulfilling CUNY's commitment to academic excellence and its mission to be "responsive to the needs of its urban setting." The innovative research, scholarship, and creative work produced by CUNY faculty help shape general knowledge and lead to applications that provide broad benefits to New York City, New York State, and people and places around the world. In addition to contributing to the economic health of the city and the state, work by CUNY faculty provides the foundation for many policies that benefit New Yorkers and residents of other large urban areas. Their creative work leads to increased interest in, appreciation of and understanding of the arts. CUNY faculty contribute to the health and well-being of New Yorkers and their environment. And they contribute to medical breakthroughs and better ways of delivering health services.

CUNY's commitment to recruiting faculty who excel in both research and teaching signifies its recognition of the importance of the role of research in the education and ultimate success of our students. Faculty who are passionate about their scholarship or creative work add excitement to the learning process when they infuse that work into their courses. Those faculty who involve students in their research help students develop the critical thinking skills and professional socialization valued by employers as well as the motivation to push forward to complete their degrees.

At CUNY, students are not just exposed to research findings in their courses. They are taught based on best practices derived from the scholarship on teaching and learning and they have the option to participate in research from the time they are undergraduates. The benefits of undergraduate research experiences in the context of student engagement are well documented in the literature on high impact practices, described in Chapter 3. Undergraduates who participate in research not only show increased motivation but are likely to acquire a better grasp of content, and improve their technical, communication, and time management skills. Several initiatives in undergraduate research are described later in this chapter. Faculty also benefit from sharing their research, scholarship, and creative work with students; working directly with students can lead to unexpected ideas and insights as well as personal satisfaction.

CUNY's Investments in Science

Beginning in earnest in 2005 and continuing over the following decade, CUNY made a significant commitment to improve science teaching and research, making a multibillion-dollar investment in faculty and facilities that has elevated science across the CUNY landscape and has improved the quality and availability of science at all levels of public higher education in New York City.

CUNY sought to address the urgent need for a healthy pipeline to the Science, Technology, Engineering and Mathematics (STEM) fields, to increase student participation in these fields, particularly women and minorities, and to attract and retain first-class faculty in the STEM disciplines and provide them with the facilities and resources to enable them to achieve at the highest levels. Further, the university worked to

Faculty Research: At the Crossroads of Environmental Solutions

Created in 2008, the CUNY Environmental CrossRoads Initiative draws its inspiration from New York City as “the crossroads of the world,” bringing together interdisciplinary scientists, engineers and technologists join with policy experts to analyze environmental crises and craft innovative solutions to emerging environmental problems. The CrossRoads’ mission is to “develop practical strategies for managing an Earth system capable of sustaining humans and nature over a millennial time horizon.” CUNY faculty from the ASRC, City College and Brooklyn College, together with colleagues from the Jet Propulsion Lab, NASA, are undertaking research to address such diverse challenges as coping with climate extremes, feeding a growing population, establishing energy security while preserving ecosystem services and biodiversity, protecting human health, and sustaining economic development.

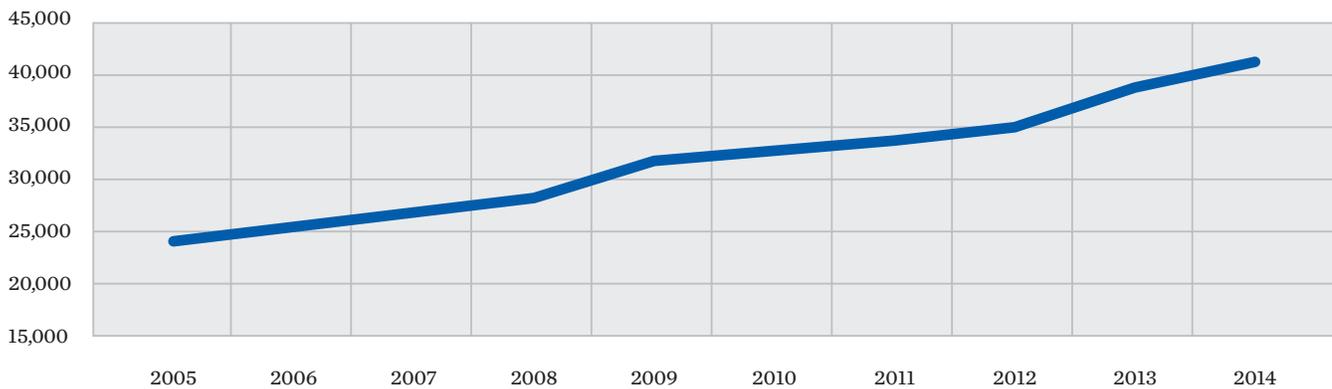


foster an environment that inspires and encourages innovation and entrepreneurship that stimulates economic development across New York City and State. As a result of these investments in science, CUNY has increased the number of students who graduate and enter the workforce with degrees or backgrounds in the STEM fields, and it has raised the profile of science at the university. The current generation of CUNY researchers is at the forefront of some of the most vital scientific challenges of our time.

Since 2005, approximately \$2 billion was expended across the university on the construction of science facilities, including those at City College, John Jay College, Lehman College, Queens College and the capstone of CUNY’s science construction projects, the Advanced Science Research Center (ASRC), mentioned earlier in this chapter and discussed in more detail in a separate section below. In addition CUNY and Hunter College entered into a public/private partnership with Weill Cornell Medical College to acquire a full laboratory floor for Hunter scientists and students in Weill Cornell’s new Belfer Research Building on East 68th Street. Another public/private joint venture, with NYU Langone Medical Center, resulted in a state-of-the-art first responder, emergency response, and health care simulation training facility located at Bellevue Hospital. Further, laboratories across many of the CUNY colleges have been renovated and updated to support 21st century science instruction and research.

This period also saw a significant investment in hiring talented research active faculty in STEM disciplines at all levels at all colleges. As mentioned above, CUNY experienced a 20 percent increase in faculty in STEM-related areas. These faculty members were recruited strategically with a goal towards expanding research in emerging areas that cut across traditional departmental boundaries, for example, to address environmental challenges in the 21st century, especially within New York City and around the state. Within CUNY, there are now more than 230 faculty members involved in environmental science, many of whom are nationally and internationally recognized. The Environmental CrossRoads Initiative at the ASRC serves as a focal point to unite environmental science research efforts among CUNY’s faculty and research

Figure 17: Trends in Enrollment in Undergraduate STEM Programs



centers. Such efforts position CUNY to become an internationally recognized leader in the field of advanced environmental studies. Similar efforts were made to expand and enhance CUNY's expertise in the other interdisciplinary areas of concentration at the ASRC.

Going forward, CUNY will expand its ability to address contemporary urban challenges related to the environment, human health, technology, infrastructure, and the ever-changing modes of social organization by providing support for faculty who engage in highly interdisciplinary research that addresses complex scientific and societal issues. Through seed grant programs and other support models, this will help foster collaborations and problem-solving approaches that transcend individual disciplines and integrate a diverse range of skill sets and expertise.

From 2005 through 2014, enrollment in CUNY's STEM undergraduate degree programs increased almost 70 percent, to more than 41,000 students by fall 2014, compared to a 23 percent increase in students in non-STEM disciplines. In part to help stimulate growth in the pipeline of students in STEM disciplines, CUNY's extensive College Now program (described in Chapter 2), began a partnership with the New York City Department of Education to hold the New York City Science and Engineering Fair. This is the city's largest high school research competition, in which up to 1,000 high school students from across the five boroughs present their research projects and compete for prizes. Many of these students carry out research projects with CUNY faculty and consequently are exposed early in their careers to an authentic research experience at the university. Additionally, a STEM Research Academy was established within College Now. This pre-college science course is designed to build essential literacy and numeracy skills, and is followed by the opportunity to enroll in a six-week summer research experience with CUNY faculty.

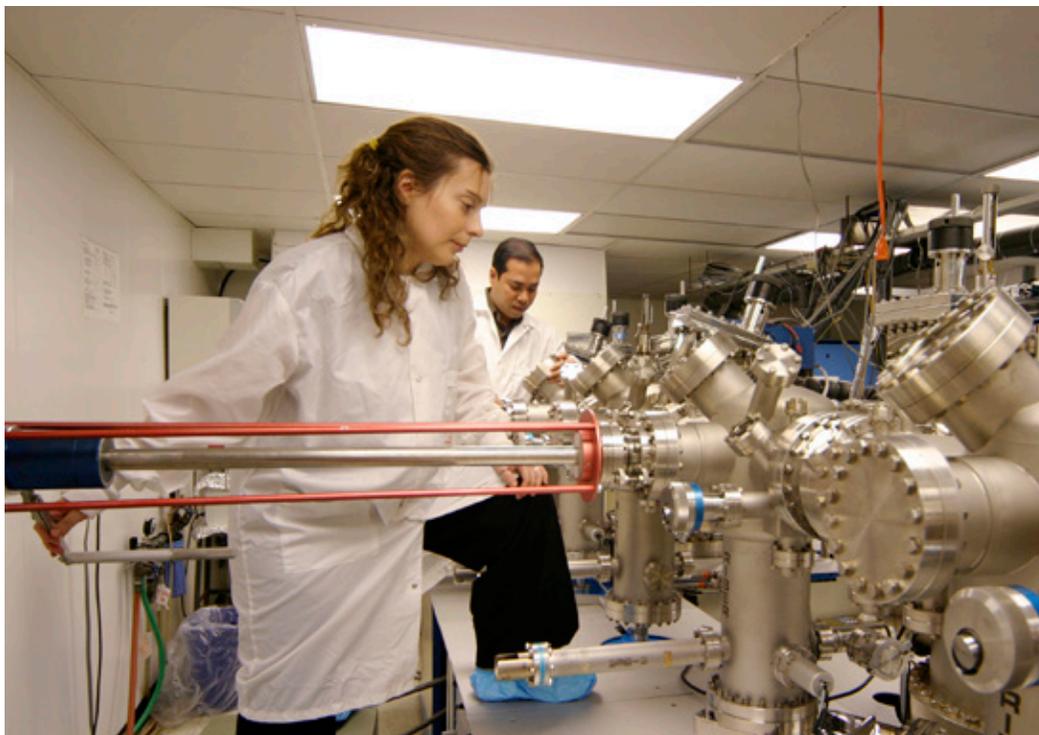
The next few sections describe a number of initiatives springing from CUNY's investments in science.

Undergraduate Research

Involving undergraduate students in faculty research has been a feature at CUNY for many years, but over the last decade, in particular, the university undertook more systematic efforts to institutionalize undergraduate research across the colleges, including the formation of a CUNY-wide Undergraduate Research Council and expansion of mentored research opportunities for students at CUNY's seven community colleges and three comprehensive colleges: Medgar Evers, the College of Staten Island, and New York City College of Technology.

Over the course of this Master Plan, CUNY will expand opportunities for first-year students to participate in STEM experiences combining research and classroom instruction. These experiences will be integrated into first-year gateway coursework and research methods courses, as well as peer mentoring and instruc-

Student Research



CUNY Research Scholars Program

Each year, 200 of CUNY's community college students have the opportunity to participate in authentic scientific research, to gain experience in a laboratory environment, and to engage with faculty mentors and learn about their disciplines and career paths, thanks to the CUNY Research Scholars Program. This year-long, transformative program exposes associate degree students to authentic research under the guidance and mentorship of faculty. By learning about research practices and the world of scientific inquiry early in their academic careers, students learn about the careers that are available in STEM fields. Beyond their research experience, Research Scholars benefit from related programming, including sessions on laboratory safety, public speaking and poster preparation. They present their work to peers and mentors at a culminating summer symposium. Ten students—one from each participating college—were chosen to give oral presentations on topics ranging from Huntington's Disease (by Molly Caperna at BMCC), to linguistics (Brittney Hollingsworth from CSI), to monitoring of greenhouse gases (by Augustine Amissah from BCC).

CUNY Summer Undergraduate Research Program

For ten weeks in the summer, a group of talented CUNY undergraduate students are chosen to participate in hands-on research in five key science disciplines: environmental science, nanoscience, neuroscience, photonics, and structural biology. Working in CUNY's new state-of-the-art Advanced Science Research Center, C-SURP students have the opportunity to collaborate with faculty scientists, gain experience with cutting-edge lab technology, and engage with CUNY's innovative community of researchers. This selective program—which also features a seminar series, behind-the-scenes tours of museums, and career development workshops—is available to sophomores and juniors at CUNY senior colleges, and community college students who have completed 30 or more credits. In summer 2015, participating students worked on a variety of projects in environmental science, nanoscience, neuroscience, photonics and structural biology. Students included Rachel Hecht from Hunter College, who studied the optical properties of 2D materials, and RinZhi Larocque, from the College of Staten Island, who studied protein structure using nuclear magnetic resonance.

tion by graduate students and postdocs. This programming is intended to socialize students into the CUNY scientific community and to instill a “growth mindset,” the idea that intelligence is not fixed, but rather can be developed. This view of intellectual growth can inspire students to confront challenges with the understanding that through hard work they can succeed at difficult academic work.⁵² CUNY will also revamp gateway STEM courses by using techniques such as flipped classrooms, which allow more time for students to actively engage with the materials they are learning through small-group activities and problem-solving sessions.

Through the Research in the Classroom initiative faculty will be encouraged to incorporate authentic research experiences into their courses. This initiative combines professional development workshops with a grant program to fund creative and innovative solutions integrating authentic research in a classroom setting, thus broadening participation of undergraduate students in this high impact practice. The workshops are held on a biennial basis and include platform presentations, poster sessions by faculty, breakout sessions on assessment, and discipline-specific approaches to designing research projects that work in a classroom setting.

CUNY also encourages faculty-mentored undergraduate research experiences through a variety of programs that support faculty and students. Students from across the university can apply for support to engage in summer research experiences via the CUNY Summer Undergraduate Research Program, which is now focused on the fields of environmental science, nanoscience, neuroscience, photonics and structural biology. In addition, associate degree students are eligible to participate in the CUNY Research Scholars Program that is funded by the Office of the Mayor of New York, and currently supports 180 students annually. Community college faculty who engage undergraduates in their research are also eligible to apply for Mentored Undergraduate Research Grants that fund summer experiences for students.

Faculty-mentored undergraduate research experiences will be expanded through increased grant support for both faculty and students. CUNY currently supports faculty at community colleges that demonstrate excellence in both research and mentoring of undergraduates. This support will be extended to faculty at senior colleges who will mentor incoming freshmen and rising sophomore students. Summer research offerings for associate degree students that include career development guidance and communication skills training will also be expanded. Finally, faculty will be encouraged and supported, via professional development and grant writing assistance, to include undergraduates in their research programs.

Doctoral Programs

As CUNY continues to build upon its investments in science, it is committed to enhancing its doctoral programs in the lab-based sciences. New enhancements to the programs are planned, including increased student stipends and reduced teaching requirements in order to attract the best students to CUNY and ensure that those students finish their degrees in a timely manner. CUNY will also create opportunities for its doctoral students to use the facilities and space at the ASRC. Still another project will be the initiation of a small number of new interdisciplinary science doctoral programs to meet the needs of the next generation of scientists. Areas under consideration include biophysics and biodesign as well as nanotechnology. Proposals for such programs will be reviewed and subsequently recommended by a university oversight committee for the lab-based sciences chaired by the University Provost. CUNY’s goal is to expand the cohort of bench science doctoral candidates from 90 in fiscal year 2016 to 125 by fiscal year 2019. To this end, the CUNY Graduate Center has created a new position to support recruitment and admission. The Graduate Center will also enhance its websites, support faculty travel for recruiting opportunities, and pay for visits by promising applicants. The Graduate Center’s commitment to science extends beyond the bench sciences, which are physically located on the college campuses, to theoretical science. It has hired world-renowned theoretical biologists and physicists as part of the new Initiative for the Theoretical Sciences (ITS).

Advanced Science Research Center

The capstone of CUNY's science investments, the Advanced Science Research Center (ASRC), opened in fall 2014. The ASRC brings to CUNY and to New York an innovative research center that takes an unusually expansive and collaborative approach to the pursuit of world-class science with real-world impact. Led by top researchers in some of global science's most dynamic disciplines—nanoscience, photonics, structural biology, neuroscience, and environmental sciences—the ASRC positions CUNY at the vanguard of 21st century scientific exploration and education. The 200,000 square foot facility has been designed for researchers to mingle and for ideas to flow freely; a research center where collaborations can form between scientists with divergent but complementary interests. Its state-of-the art instrumentation, including NMR spectroscopy, electron microscopy, crystallization, mass spectrometry, solution biophysics, and nanofabrication facility, are resources that have been sought by CUNY and non-CUNY academics, start-up companies, and faculty researchers in the area. The ASRC operates as the nucleus of a university-wide science enterprise that brings together faculty, students and post-doctoral fellows from CUNY's colleges across the boroughs with researchers from across the city and state.

To ensure that the ASRC fulfills its mission to be a catalyst for interdisciplinary scientific research and discovery, and provides a university-wide integrated scientific research network, CUNY plans to implement a number of programs in the years covered by this Master Plan. Faculty, post-doctoral fellows, and students throughout the university who can benefit from the core research facilities and from collaborations with affiliated faculty will be offered training and opportunities to work at the center. For example, the ASRC boasts a state-of-the-art nanofabrication facility that offers researchers the world's most sophisticated instruments for fabrication and characterization of materials at the micro and nano scales. Researchers from CUNY and some of the most elite institutions in New York City are using this facility, and CUNY will leverage this opportunity to forge new internal and external research collaborations. Seed funding will be provided to promote research collaborations between faculty at CUNY colleges and the ASRC scientists. Tenured faculty will have the opportunity to apply for mini-sabbaticals of at least one semester at the ASRC to advance their research and to bolster proposals for external grants. And competitive opportunities will be provided to allow faculty to hire postdoctoral fellows who, in addition to placement at their home CUNY colleges, will take advantage of a collaborative relationship with an ASRC lab. The postdoc's time at the ASRC will provide him/her with access to state-of-the-art equipment that is not found at the home college. These postdocs will also benefit from additional mentorship and guidance from the resident ASRC scientists and staff.

Partnerships and Economic Development

Partnerships, entrepreneurship, and economic development were also important components of CUNY's investments in science and the university is prepared now to follow up on the accomplishments of those years. The Science and Resilience Institute at Jamaica Bay, a CUNY-led consortium that includes Columbia, Cornell, Stony Brook, and Rutgers Universities and the Wild Life Conservation Society, was established in 2012 in response to a call from the National Parks and New York City to support research on environmental resilience in urban coastal ecosystems. CUNY also partnered with NYU and other academic and industrial partners in response to Mayor Bloomberg's 2012 call for a new science and engineering campus in the city, which led to the formation of the Center for Urban Science and Progress (CUSP). CUSP is an applied science and engineering institute that focuses on the challenges that an increasingly urbanized planet will face in the coming decades, especially how to accommodate more people in cities, safely, prosperously, and sustainably. CUSP is led by NYU and includes Carnegie Mellon University and industrial partners such as IBM, Microsoft and Siemens.

A major goal of CUNY in the coming years is to cultivate and oversee an environment that supports innovation and entrepreneurship at the university. A key focus of this will be establishing a dynamic innovation culture that encourages and stimulates faculty entrepreneurship. Now, the intention is to leverage faculty

Entrepreneurship at CUNY



In partnership with the faculty and staff from The Field Center for Entrepreneurship at Baruch College, the university established the Center for Student Entrepreneurship as an incubator for CUNY students to incorporate and start their own businesses, create jobs for students and stimulate business growth and economic development in New York City. As of December 2015, more than 60 students have entered the program, launching 43 companies—32 of which are still running—and receiving \$2.6 million in investments and \$75,000 in other funding. Founded by entrepreneurs hailing from Baruch, CCNY, Hunter, Lehman, Queens College, CUNY Graduate Center, Medgar Evers College, Kingsborough, the companies run the gamut from an online platform to help new teachers reach disengaged students, an app for on-demand laundry and dry-cleaning delivery service, a monthly craft project delivery service for young girls, a network management tool for using 3D printers in schools, gluten free treats, a healthcare company focused on OITC products, and more.

In addition to creating more than 30 new jobs, the incubator has provided its student participants with hands-on workshops and valuable connections to mentors and prospective funders. Additionally, it has led to programming that helps educate student entrepreneurs about the business world through the Student Start-up Speaker Series, a variety of competitions, and co-working opportunities. A CUNY-wide student Ambassador program just launched in the spring of 2016 and CSE is spearheading the first CUNY-wide Hackathon for fall 2016.

To integrate innovation and entrepreneurship across CUNY, the university has devised a tool-kit to help faculty and graduate students launch startup companies that leverage advances in science and technology. This “tool-kit”—composed of research facilities, educational programs, internship opportunities, mentoring and training programs, and incubators—revolves around an infrastructure for accessing the entrepreneurship ecosystem available throughout New York City and New York State.

Through these interconnected channels, CUNY strives to:

- Recruit more world-class faculty by attracting productive researchers interested in commercializing their inventions.
- Cultivate more university-industry collaborations that will help create startup companies that can generate new revenue for CUNY and positively impact the local economy.
- Strengthen existing professional graduate programs and develop new ones through expanded work with private companies.
- Expand internships, research opportunities, and career prospects for our graduates in the private sector, and increase student recruitment and retention.

ASRC: A central component of the CUNY research enterprise, this world-class facility will support collaborative research by scientists in nanoscience, photonics, structural biology, neuroscience, and environmental sciences.

NY i-Node: A network of 25 leading universities in the New York, New Jersey, Connecticut, and Pennsylvania area, funded through the National Science Foundation I-Corps program. Provides state-of-the-art training for academic researchers and technologists.

Power Bridge: A joint effort by several New York educational institutions to support the formation of companies that will translate research on clean energy technology into the marketplace.

TCO: CUNY’s dedicated office for encouraging, protecting, marketing, and licensing innovations by faculty, students, and staff.

iHub: An incubator and New York State Innovation Hotspot, established by CUNY to promote and support faculty entrepreneurship, create educational and career opportunities for students, and foster collaborations with business and industry. Its focus: bringing new technologies from the laboratory into the marketplace.

StartUp NY: A New York State initiative to create tax-free areas on eligible university campuses for new and expanding high-tech businesses. Participating CUNY schools include Bronx Community College, City College, Medgar Evers College, York College, and the College of Staten Island.



expertise to stimulate advances in science and technology and grow the economy by creating new products, services, and jobs.

In partnership with NYU and Columbia, CUNY leads the New York City Regional Innovation Node (NY-CRIN) and its extensive network that includes over 25 leading research universities in New York, New Jersey, Connecticut, and Pennsylvania. An NSF-funded I-Corps training node, NYCRIN offers commercialization training and support to university innovators including faculty, postdocs, and students who are interested in pursuing the development of spinoff companies based on their inventions. CUNY's central incubator, the Hub for Entrepreneurship and Innovation (iHub), is now an Empire State Development certified "Innovation Hot Spot." These and other activities have resulted in more than 15 companies being created by CUNY faculty in the past three years.

CUNY has made great progress in integrating innovation and entrepreneurship across the university and providing the tools—research facilities, educational programs, internship opportunities, mentoring, training and incubators—for faculty and graduate students to leverage advances in science and technology to create startup companies that grow the economy. A solid infrastructure that supports innovation and entrepreneurship is now in place, with the iHub at its center. The CUNY research enterprise, including the ASRC, will drive the necessary research advances. NYCRIN, together with the Powerbridge NY program, a CUNY-New York Polytechnic Institute of New York (NYU-Poly) partnership dedicated to helping New York State inventors and scientists turn their high-tech, clean-energy ideas into successful businesses, works to translate these research advances into the marketplace. CUNY's Technology Commercialization Office (TCO) and its Center for Industry Partnerships serve as spokes that provide critical support.

With the core pieces in place, CUNY will now expand the services offered by this network and integrate it more completely with the entrepreneurship ecosystem available throughout New York City and New York State. Recruitment of world-class faculty becomes easier as productive researchers who are interested in commercializing their inventions are attracted to CUNY. University-industry collaborations will continue

to encourage the creation of startup companies that both generate a new source of revenue for CUNY and have a positive impact on local economies. Faculty working with private companies will be able revitalize career oriented graduate programs and contribute to the development of new professional programs. Opportunities for student involvement in internship and research programs in the private sector will increase, thus enhancing our ability to expand career prospects for graduates, and consequently increasing student recruitment and retention.

CUNY's role in expanding entrepreneurship goes beyond support for its own faculty and students. Through its participation in New York State's economic development initiative known as Start-Up NY, which offers new and expanding businesses the opportunity to operate tax free for 10 years on or near an eligible New York State university or college campus, CUNY is providing access to advanced research laboratories, development resources, and experts in key industries.

Growing and Exporting CUNY's Urban Expertise

CUNY is home to a large number of distinguished faculty who have expertise in urban issues, including urban design and planning, infrastructure, transportation, sustainability, social work, public health, education, public safety and criminal justice, economic development, disaster planning, and demography. This expertise will be increasingly important on the global stage. As noted in Chapter 1, as of 2014, a majority, 54 percent of the world population lived in cities. By 2050, according to UN projections, two-thirds of the world population will live in cities. Increasingly, humanity will be grappling with the opportunities and problems of cities.

Several research entities at CUNY are already engaged in internationally acclaimed research on urban issues.

- The Center for Urban Research at the Graduate Center engages with foundations, government agencies,

CUNY's New Interdisciplinary Research Grant Program

Solving global challenges—ranging from environmental to public health to technology and infrastructure to ever-changing modes of social organization—will require a collaborative approach that transcends individual disciplines. The university is introducing a new Interdisciplinary Research Grant to support and encourage faculty researchers who will tackle global challenges or problems that affect urban populations. The first round of awards will be announced in September 2016.



businesses, nonprofits, and other CUNY researchers to use spatial information and analysis techniques to develop and execute applied research projects, such as the CUNY Mapping Services.

- The Luxembourg Income Study Center at the Graduate Center acquires datasets containing income, wealth, employment, and demographic data from a large number of countries, harmonizes them to enable cross-national comparisons, and makes them available for public use.
- The CUNY Institute for Urban Systems at City College examines how urban infrastructure is affected by emerging technologies, institutional change, and innovative financing. It works to identify innovative solutions to the problems of aging capital stock, environmental sustainability, and urban economic competitiveness in the management of transportation, energy, water, buildings, and other infrastructure systems.
- The CUNY Institute for Demographic Research (CIDR) focuses on research and graduate training in urban demographic data and research required to understand and address the public health and socioeconomic needs of urban residents. Its areas of inquiry range from sociology and demography of migration, race and ethnicity in the United States, to broader international issues such as the role played by socio-demographic factors in environmental health justice, longevity, and economic security.
- The CUNY Graduate School of Public Health and Health Policy focuses on five strategic areas related to urban health. These include food, nutrition, and health; population informatics and social marketing; prevention of chronic, non-communicable diseases; maternal, child, sexual, and reproductive health; and immigration and global health.

As will be discussed in Chapter 5, Sustainable CUNY is a university-wide initiative to reduce energy consumption at CUNY. This project also engages the broader community through policy work, research, capital projects, workforce development, and economic development activities. CUNY also conducts ground-breaking sustainability research at the Science & Resilience Institute at Jamaica Bay at Brooklyn College; the CUNY Institute for Sustainable Cities (CISC) at Hunter College; and the CUNY Energy Institute at City College.

John Jay College has the largest faculty expertise in issues related to public safety and criminal justice. Its faculty researchers bridge academia, government, and industry to address key criminal justice issues, such as community safety, domestic crimes, and rehabilitation and education of the formerly incarcerated.

Adapting the model of the nation's land grant institutions, which were originally designed to support their communities, particularly through agricultural education and research, CUNY seeks to create a conduit to its faculty resources to address challenges particular to the urban setting, such as the built environment, transportation, sustainability, urban design and planning, social work, community health, education, public safety and criminal justice, economic development, disaster planning, and demography. CUNY will strengthen the connection of students to service and experiential learning opportunities throughout the city. Although the initial focus will be New York City, resources would be available to other urban areas in New York State and the nation.

CUNY SERVES THE CITY AND THE STATE

As noted in this chapter and throughout the Master Plan, service is deeply rooted in CUNY's DNA. The university's contributions to its city and state extend far beyond educating students and producing knowledge and developing a skilled workforce—CUNY is also at the heart of countless public service and civic engagement efforts that help make New York, New York.

Many of these efforts are in direct service to CUNY's local communities. When Hurricane Sandy hit, CUNY mobilized hundreds of volunteers to aid the region's response efforts and rolled this momentum



into a lasting, impactful initiative in the CUNY Service Corp. The university trains 311 operators who help troubleshoot every conceivable issue confronting New Yorkers on a day-to-day basis. By treating patients in its dental and health clinics, the university helps reduce the strain on the city's overburdened emergency rooms. Any given day of the week, there are public lectures and other events and programs underway at every CUNY campus, stimulating ideas and conversations that inspire and connect people. Likewise, the university opens its performance and exhibit spaces to the public, inviting the community to share and experience cultural riches of every variety.

At the state level, CUNY's partnerships are forward-looking and long-term in scope; some are detailed in other chapters but warrant mention here as well: Multipronged energy conservation initiatives like Sustainable CUNY, investments to incentivize economic growth like CUNY 2020, and efforts, such as the Hub for Entrepreneurship and Innovation and New York City Innovest Fund, to establish New York as a leader in innovation and creativity in the fields that are defining the 21st century.

CUNY's Impact on the City: Highlights

No single list could capture the full range of CUNY's service for its populace, but the following presents a handful of examples that highlight the breadth and depth of the university community's involvement with efforts to advance New York and benefit the public good.

- The Vote For A Change campaign registered thousands of students across 25 campuses to participate in city, state and presidential elections, using cuny.edu/vote, CUNY-TV, email messages, and social media platforms, as well as the efforts of nearly 30 voter registration coordinators. In the 2012 Presidential election, CUNY registered 123,698 students to vote; for the 2014 midterm elections, CUNY registered 107,130 students; and efforts are ongoing for the upcoming 2016 elections.



- Brooklyn College's Feirstein Graduate School of Cinema, located within Steiner Studios in the Brooklyn Navy Yard, will provide skilled professionals to New York City's growing film, television and other media platform industries.
- With a five-year, \$3.75 million grant from the Centers for Disease Control and Prevention, the NYU-CUNY Prevention Research Center is working to reduce health inequities in New York City, particularly among ethnically diverse and immigrant communities.
- With a \$499,000 grant from the NYC Department of Health and Mental Hygiene, the CUNY School of Public Health and the NYU Department of Population Health are evaluating a major initiative to improve the health outcomes of public housing residents in East Harlem.
- A team of New York City College of Technology faculty members and students work with children and parents of younger children in the Brownsville section of Brooklyn to improve skills for maintaining health.

- The new CUNY School of Medicine at City College will build on the 40-year success of the Sophie Davis School of Biomedical Education, by increasing access to an academically intensive medical education and training a diverse corps of physicians for underserved communities across the state.
- CUNY TV has been educating and informing city viewers for three decades. The largest university television station in the country, its cable distribution in the city's five boroughs is enhanced by digital broadcast and reaches the tri-state area to a 35-mile radius from Times Square. CUNY TV's many programs include a new monthly events and culture magazine, Arts in the City; a monthly news program, Asian American Life, dedicated to one of the most diverse populations in the New York metropolitan area; and specials on food, animals, Baby Boomers, the regional economy, and independent films.
- The CUNY Graduate School of Journalism is the new home for The New York Times Student Journalism Institute, an annual two-week program designed to train young journalists and increase newsroom diversity.
- The CUNY Service Corps kicked off its third year this fall with 900 new student-members gaining paid work experience at 125 nonprofit and government agency partners across the city, including the 9/11 Memorial & Museum, American Museum of Natural History, Brooklyn Navy Yard Development Corp., Center for Court Innovation, and New York-Presbyterian Hospital.
- Kingsborough Community College's Urban Farm is an organic, year-round food production site where students, faculty, staff, and the community can learn about sustainable urban farming.
- The Global Cyber Alliance, a not-for-profit dedicated to confronting cyber security risks domestically and abroad, is a joint effort among CUNY, Manhattan District Attorney Cyrus Vance Jr., the City of London Police and the Center for Internet Security.
- York College students, with a \$50,000 initiative from the Department of Environmental Protection, are working with the Department of Environmental Protection on a survey of 200 homes in an area of southeast Queens affected by persistent flooding.
- In recognition of the 25th anniversary of the Americans with Disabilities Act in 2015, John Jay College of Criminal Justice hosted "Lights! Camera! Access! 2.0: Achieving Disability-Inclusive Diversity Through a Brand New Lens," a conference focused on ways of improving the portrayal of disabled people in film and television.
- An archeological team led by CUNY graduates unearthed more than 100 pieces of rare Native American artifacts dating back to 200 A.D. in a Bronx construction site.
- The CUNY Dance Initiative provides dance companies with free rehearsal space on CUNY college campuses, while allowing students and surrounding communities to interact with professional dancers at master classes, public lectures and open rehearsals.

CUNY'S LIBRARY SYSTEM

CUNY's library system is a federation of 31 libraries and the CUNY Central Office of Library Services (OLS). The system supports the university's 25 colleges and more than 100 research centers and institutes. Over the past four years, to better support the research and teaching missions of the university, CUNY's libraries have made significant investments and improvements in user experience, collections, teaching and learning, research and scholarship, and infrastructure. The next four years will see even more progress in each of these areas.

Figure 18: CUNY Libraries by the Numbers

25 colleges 31 libraries 850 full-time staff \$58 million total expenditures 14 million+ visitors
Collection Expenditures: \$15.7 million, including \$14.6 million for e-resources <ul style="list-style-type: none">• Print: 6 million+ monographs 3.3 million+ circulation transactions 2 million+ searches• Electronic: 3,500+ databases 100,000+ eJournals 515,000+ eBooks 2.1 million+ full-text downloads 30 million+ searches across all platforms• Institutional repository: 11,000+ current objects 215,000+ downloads to date from 166 countries
Services: <ul style="list-style-type: none">• 83,000+ Interlibrary loan (digital/print) transactions• 38,000+ CUNY consortial loan transactions• 350,000+ Reference consultations

Enhancing the User Experience

To optimize discovery of disparate library collections in print and digital/electronic formats, streamline access, and increase CUNY's return on investment in electronic resources, the university implemented OneSearch, CUNY's first unified, cloud-based library discovery platform. Moving forward, OLS will expand coverage of OneSearch to include additional material such as local digital collections and publicly available collections like the New York Public Library Digital Collections. Accessibility has also been enhanced by optimizing the libraries' discovery ecosystem for mobile platforms. Going forward, both desktop and mobile interfaces will further improve access to the libraries' resources for all members of the university. As access to library resources continues to shift from on-site to remote, the use of the physical spaces of the libraries also shifts. With the increase in experiential learning experiences and collaborative work, the CUNY libraries are re-configuring spaces and will continue to do so by moving physical collections, improving technology, and, in some cases, having librarians work in collaborative spaces along with students.

Collections

The university secured preferential discounts from six primary vendors, resulting in the procurement of unprecedented access to STEM resources for all CUNY libraries and the Advanced Science Research Center. In the years ahead, to increase efficiencies and reduce costs, OLS will work to secure additional e-resources via collaborative purchasing across CUNY libraries and will continue to collaborate with local and regional partners including SUNY, METRO, NYPL, NYCDOE and New York State to share resources. The libraries have also planned an audit of existing e-resource licenses and new proposed licenses in order to work with vendors to bring them into compliance with CUNY and New York State requirements regarding accessibility standards.

Teaching and Learning

Over the past several years, the CUNY libraries undertook a number of projects to enhance teaching and learning across the university. From 2013 through 2015, through its Textbook Initiative, the libraries purchased a total of 66,895 printed textbooks, which have circulated 1.2 million times, and an electronic collection of 120,000 books. In addition, several libraries funded small projects in which teaching faculty created free digital textbooks for their courses. Because the cost of print textbooks continues to be an impediment to student learning and a drain on library resources, CUNY will expand support of faculty to create digital open access textbooks that are free to students. CUNY Academic Works, described in the next section, is already in place to provide a platform for open access textbooks. The libraries will assist faculty in creating textbooks for the most heavily enrolled courses and encourage faculty across the university

to consider using and modifying open access textbooks for their own courses. The OLS will also identify a cohort of community college degree programs for which open access textbooks can be created leading to a zero textbook cost degree.

In the next four years, OLS will continue its close collaboration with faculty to support teaching and learning. Online instruction is an example. To provide students with easier access to the resources offered by CUNY's libraries, the libraries and the OLS partnered with CUNY's Computer and Information Systems (CIS) to embed library services, tools, and expertise into the Blackboard online learning environment that students use in the majority of their classes.

The libraries have also been active in promulgating standards of information literacy. The Library Information Literacy Advisory Committee (LILAC) completed work on articulating basic information literacy standards for all CUNY students who have earned 60 credits. LILAC will build on a pilot program at Lehman College, where programming in support of information literacy is the result of collaboration between disciplinary faculty and library faculty, and within the context of a discipline, integrating information skills into the academic, workplace, and life landscapes. In addition, librarians across the system will become more "embedded" in non-library courses by collaborating in Blackboard spaces, participating in classes along with CUNY's students and assisting discipline faculty with developing assignments that enhance student learning.

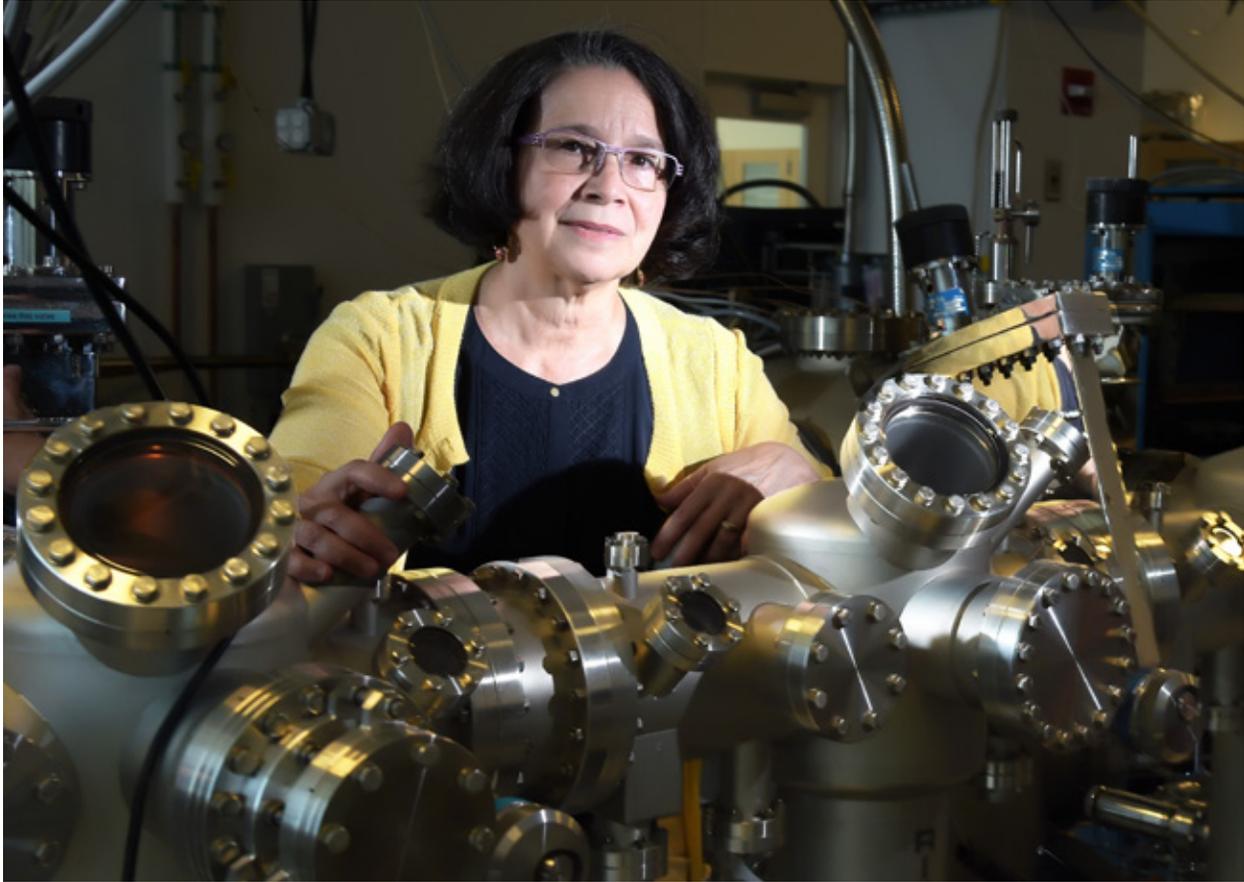
Impact and Communication of Research and Scholarship

In response to CUNY UFS Statement and Resolution on Open Access, OLS implemented Academic Works, the CUNY-wide open access institutional repository, which showcases the intellectual life and history of the university and delivers universal, free access to CUNY scholarship and research. In tandem with the implementation of Academic Works, the libraries have taken an active role in educating the CUNY community about open access scholarship, open educational resources, and the benefits of submitting work to CUNY's new repository. They have also provided education and guidance about issues such as copyright, authors' rights, creative commons licensing, evaluating potential publishers and compliance with open access requirements for research output mandated by federal and private funding agencies. OLS plans to establish an Office of Scholarly Communications supporting faculty, staff and students in the following areas: repository and digital scholarship services; journal publishing, open educational resource development, data management planning in collaboration with campus grant's officers; as well as analytics and assessment.

Infrastructure

Recently, OLS has made significant investments in the technical infrastructure supporting CUNY's libraries and plans to continue this work over the next four years. The enhancements of security and ensuring high availability have been an important focus. Patron authentication to all CUNY libraries' information services is now encrypted and all CUNY-hosted library systems are now deployed in CIS's disaster recovery framework. The university also completed a full, three-version upgrade of Aleph, CUNY's integrated resource management system that manages circulation, acquisition, inventory and reporting capabilities for all CUNY Libraries. The Aleph upgrade is a significant improvement that delivers better functionality, though it remains a legacy platform. Aleph is a client-server system that is difficult to deploy and maintain on individual workstations in the libraries. However, OLS plans to replace the Aleph system with a state-of-the-art, cloud-based resource management platform that will better meet the needs of users and staff across the university. The newer generation of library systems are browser based, and are more fully integrated, allowing for a better end-user experience as well as more efficient back-office processes.

Taken together, the initiatives described above—updating the curriculum to reflect advances in knowledge and industry, ensuring that our students can flourish in a globalizing, urbanizing, and digitalizing world, building and diversifying CUNY's faculty, supporting research and scholarship, and nurturing economic development—will bolster CUNY's standing as the premier urban university.



Chapter 5: CUNY Will Operate Efficiently in the Service of its Academic Mission

No other university system in America offers high-quality, low-cost education on the scale of CUNY. Its ability to do so depends on state and city funding of the university's operating budget, coupled with tuition assistance offered to New York State residents through the Tuition Assistance Program (TAP) and the federal Pell program. In addition to these two factors CUNY is affordable because the university operates efficiently, due to the consolidation of a number of administrative functions in the central system administration. By centralizing admissions, procurement, IT, reporting, and construction and design, duplication of these activities across the system is minimized, making it possible to focus resources on the academic mission. Despite these advantages, CUNY faces a number of challenges. Costs are high in New York City, necessitating greater spending on rentals, maintenance and operations. Because the cost of living is much higher in New York than in almost any other city in the United States, salaries must keep pace if the university is to attract and retain a talented faculty and staff. The cost of benefits, particularly health care, puts pressure on operating costs. In short, despite the advantages of a centralized and integrated system, many challenges face the leadership of the university as it seeks to navigate the fiscal and political shoals of the present and future.

STRATEGIC PLANNING

This Master Plan reflects the broad priorities emerging from a strategic planning process underway for the past year. Informed by the deliberations of the 21st Century CUNY Steering Committee, which is chaired by Chancellor Milliken and composed of CUNY presidents, faculty, administrators, and student leadership, CUNY is preparing a strategic framework to guide CUNY over the next four years and beyond. The framework will both reflect planning at the colleges and set new directions for the colleges and system in the years ahead.

STRATEGIC FISCAL MANAGEMENT

CUNY has embarked on a multi-year fiscal plan to identify and implement opportunities for cost savings and efficiencies, such as reducing the duplication of administrative functions. All savings will be reallocated to the priorities outlined in the Master Plan, and to further support CUNY's academic and student mission.

Sound fiscal management is central to CUNY's mission of providing an affordable high-quality education. This is the responsibility of CUNY's Office of Budget and Finance, which oversees CUNY's fiscal operations and provides strategic leadership and tactical expertise. The office sets and maintains policies and procedures to eliminate redundancy and deliver efficient and effective financial management services, including:

- Ensuring the continued financial integrity and stability of the university.
- Providing financial management leadership and influencing the strategic direction.
- Ensuring the prudent use of resources through standardization, consolidation and automation.
- Serving as an effective financial steward for the development of controls, financial risk management, and compliance with regulations.
- Creating successful partnerships and relationships with faculty, staff, students, and other internal and external stakeholders.

The central office works with the administration at each of the CUNY colleges to identify new revenue streams, increase private fundraising, expand shared service centers, capitalize on economies of scale through strategic sourcing initiatives, and maximize operating efficiencies.

Since 2012, the university has taken the following steps to improve financial planning:

- Streamlined and professionalized its annual financial planning processes and reviews.
- Empowered the colleges to make decisions about best use of their funds by reducing targeted budget funds and allocating energy budgets to senior colleges to incentivize greater accountability.
- Strategically managed senior college and central office budget reductions necessitated by unfunded needs, both mandatory and new.

Over the next four years CUNY will strengthen the linkages between financial and strategic planning centrally and at each of the colleges, including university-wide planning. In support of this effort, the university will prepare a system-wide multi-year all funds financial plan and continue to ensure that limited resources are reallocated to support strategic priorities.

Enhancing and Diversifying Revenues

As noted above, across the United States, state support for higher education continues to decline. New York State is moving along the same trajectory. Between FY2008 and FY2015, overall funding per FTE student

declined by 8 percent, when adjusted for inflation. Although the trend reversed course in FY 2012, tuition revenues accounted for more than 95 percent of the increases since then. Colleges and universities have, necessarily, have had to further reduce costs and develop alternative funding streams. CUNY will seek out new and grow existing alternative revenue streams while working with university stakeholders to strengthen advocacy for greater investment from the city and state.

Private Support

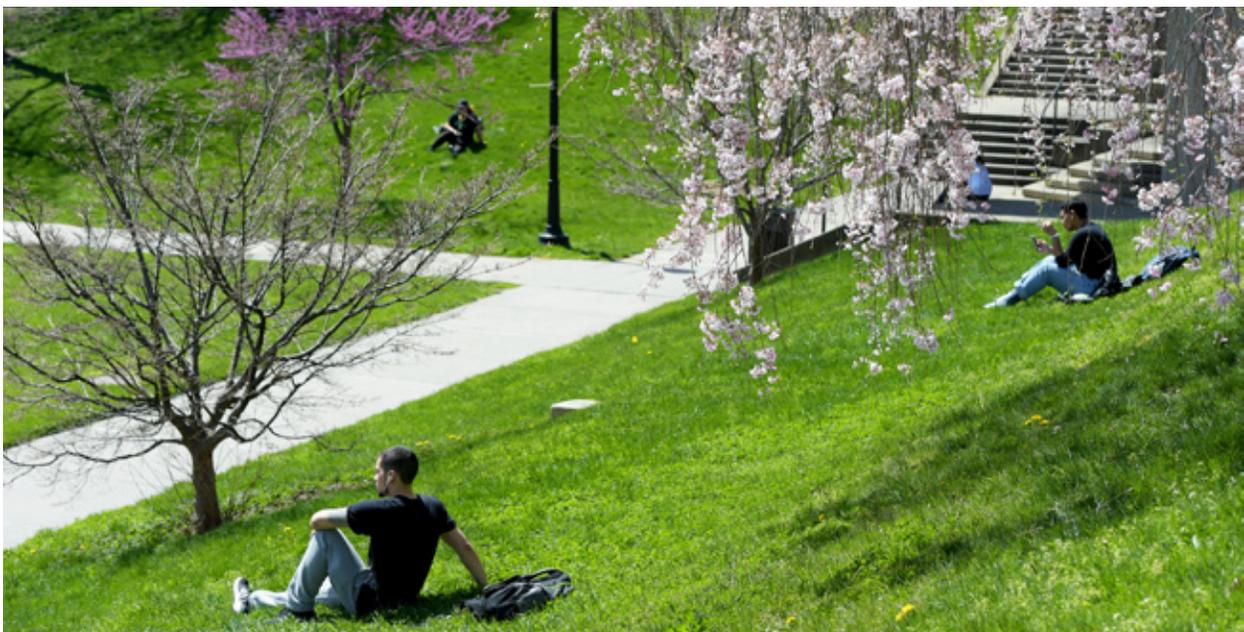
In December 2015, the Invest in CUNY campaign surpassed its \$3 billion goal. Launched over a decade ago, the Invest in CUNY campaign involved all 25 college campuses. As a result of the combined advancement efforts across the university, CUNY raises around \$200 million annually and, in FY 2015, this total reached \$211 million.

Chancellor Milliken launched a comprehensive assessment of CUNY's fundraising infrastructure in the summer of 2015 to help identify and deploy resources to develop a new university-wide strategic approach that will help significantly expand fundraising revenues. Following recommendations of the assessment report prepared by Grenzebach Glier and Associates, the university will increase investments in college fundraising, expand shared services to allow colleges to invest more in actual fundraising, and develop a new university-wide development function.

Predictable Tuition Policy

Although the enacted New York State budget requires that CUNY (and SUNY) hold tuition for 2016–2017 at current levels, CUNY will advocate for a continuation of the predictable tuition policy that was enacted in 2011 and expired this year. The policy allowed for modest annual tuition increases which helped to offset reductions in state support, providing a stable funding source for high quality services that move students toward degree attainment. Such predictable increases allowed students and their families to better plan for future college costs while protecting economically disadvantaged students.

Tuition increases from FY2012 to FY2016 generated \$263 million in additional revenue that were directed toward investments in academic and student support programs (\$183 million at the senior colleges and \$80 million at the community colleges), including:



- \$75 million distributed in financial aid.
- \$73 million invested in full-time faculty (\$51 million at the senior colleges and \$22 million at the community colleges).
- The addition of 996 new faculty lines (588 at the senior colleges and 408 at the community colleges).

It will be equally important to increase city and state support in order to keep higher education affordable to the students CUNY serves.

Alternative Revenues

The university has engaged in other successful efforts to generate revenues over the past several years, including through pouring rights, vending, and royalties, with additional college and university-wide initiatives to identify and realize alternative revenue streams under development, including corporate partnerships.

Maximizing Efficiency and Effectiveness of Operations

The university continues to employ strategies that maximize efficiency and reduce operational costs through several avenues, including shared service centers, strategic sourcing, and other activities that seek to balance equitable distribution with making the best use of resources through standardization, consolidation, reorganization, and automation. Shared Services and Strategic Sourcing initiatives will continue to be a key area for the university as it expands the depth and breadth of existing successful strategies.

Shared Services Centers

Centralizing some functions that were previously carried out at individual colleges is one important strategy CUNY is pursuing to reduce costs. CUNY is already doing this in some areas including payroll and benefits administration, financial aid distribution, admissions and application processing, procurement and accounts payable, and some testing functions. These efforts result in lower costs and increased efficiency through scaling, process simplification and standardization, investment in technology, and targeted professional development. Going forward, the university will look for additional opportunities to centralize and/or consolidate processing and further develop shared services and leverage economies of scale. Ongoing assessment of centralized functions will ensure that the university is maximizing efficiency and minimizing costs without compromising the quality of service delivery.

Strategic Sourcing

Strategic sourcing consolidates an organization's spending on products and services with high-quality vendors to achieve pricing efficiencies. The strategy incorporates customer needs, organizational goals, and market conditions to acquire the best products and services at the lowest cost to derive the greatest value. CUNY's approach to strategic sourcing is a rigorous and collaborative one that addresses all levels of the purchasing process to realize savings by leveraging the university's purchasing power and creating more efficient procurement processes. Implementing such strategies has demonstrated significant ongoing cost savings.

Over the last several years, CUNY has entered into numerous strategically sourced university-wide contracts to acquire technology (hardware and software), books, journals and bookbinding services, collection and accounting services, Perkins loan services, employee assistance programs, automobile insurance, armored car service, and office equipment including printers and copiers. Over the next several years, the university will seek to more fully transform the university's procurement operations into a strategic sourcing operation, identifying opportunities through an analysis of spending patterns.

Implementing Efficiencies

In addition to shared services and strategic sourcing, the university has gained operational efficiencies in the following ways:

- Reorganized staff and restructured workload to improve productivity and reduce overtime costs.
- Automated processes to reduce workload.
- Increased the use of electronic documentation and messaging to reduce paper, toner, and copier maintenance, and postage costs.
- Supported the implementation of the integrated CUNYfirst system in the areas of budget and planning, procurement, accounts payable, travel, financial aid, and student financials.
- Implemented the state's new financial system (SFS) and its upgrade (EE1), including modifying data-capture methods, screens, and inbound and outbound interfaces for the university's legacy systems; developing a new budget interface; making changes to e-procurement; and developing additional reports.

Over the next several years CUNY will expand these types of initiatives. More specifically, the university will:

- Continue to reallocate resources from lower to higher university priorities, including faculty hires and student services.
- Automate manual processes within CUNYfirst by implementing additional modules and enhancements.
- Identify technology to further enhance operations and save money, particularly on procurement, mailing, and printing.
- Implement the Print Managed Program offered through a DCAS contract across the university. The program was already implemented at Bronx Community College, where savings on printing and related costs is expected to exceed 30 percent.
- Implement a new travel system to streamline and simplify the travel booking process across the university.

The implementation of CUNYfirst has provided better access to expenditure, procurement, student billing and collection, and payroll data for improved financial decision-making. Going forward, the university expects to increase its capacity to identify, measure, and report on key indicators of financial efficiency and related priorities.

The university's efforts to find efficiencies should also include academic program offerings. CUNY needs to make sure that it is taking full advantage of the programs already in place before starting new ones. There is a staggering array of programs offered by very talented faculty, and CUNY cannot afford to, nor does it need to, replicate them everywhere. Instead, the university must ask how students and the public can best take advantage of these offerings across the university, regardless of college location, through mechanisms like ePermit.

CUNY must also seek new connections to other institutions to leverage its resources with those available through external partnerships to expand learning and research opportunities for students and faculty. Examples of such relationships offering mutual benefits include Hunter College with Cornell for research space, Brooklyn College with a private film studio, and Medgar Evers with emerging private businesses through StartUp NY.



BUILDING AND MAINTAINING CUNY'S FACILITIES

More than a decade of enrollment growth has put pressure on all of the campuses to expand facilities to keep pace, and to upgrade existing ones. Additionally, as knowledge, pedagogy, and technology evolve so does the way in which space is used, and CUNY must continually adapt—no small task. The university's 28.6 million gross square feet are spread across 300 buildings at the 25 campuses. The historic development of each campus, coupled with the unique programmatic offerings, presents unusual challenges. The Office of Facilities Planning, Construction and Management (FPCM) works closely with Academic Affairs and the University Budget Office to ensure that the university's resources are well aligned with needs and that capital projects support the campuses' programmatic offerings in the most efficient and cost effective manner. Capital projects are identified through individual campus master plans undertaken with participation from campus constituents and community partners and approved by the Board of Trustees. FPCM collaborates with the colleges to develop plans that balance the need for additional space with the need to preserve existing assets.

Building for the Future

CUNY has completed several significant projects since 2012, when the last Master Plan was written:

- Lehman College Science Hall—69,000 Gross Square Foot (GSF) science facility for instruction and research; \$76 million; designed by Perkins + Will Architects; opened 2012.
- Bronx Community College North Hall and Library—100,000 GSF library and classroom building with an information commons; \$102 million; Robert A.M. Stern Architects; opened September 2012.

- BMCC Fiterman Hall—390,000 GSF mixed-use building to replace the building damaged in the 9/11 attacks; \$325 million; Pei Cobb Freed and Partners; opened September 2012.
- New York City College of Technology Voorhees Façade—Restored the façade of this 217,000 GSF building; \$38 million; RSD Engineering w/Der Scutt Architects; completed in 2012.
- New York City College of Technology New Central Plant—This plant serves the existing campus and will also serve the new academic building currently in construction; \$66 million; designed by AECOM; completed in 2012.
- CUNY Central Office—In 2013, the university’s headquarters were moved to six floors in 205 East 42nd Street after the sale of the 80th Street building, and the Office of Computer Information Systems was relocated to 395 Hudson Street.
- Lehman College Child Care Center—12,000 GSF modular building serving 140 children; \$7 million; Garrison Architects/Axis Construction; opened September 2013.
- CUNY School of Professional Studies—Located in a new 76,000-square-foot leased facility in Manhattan; A2 Architects; opened September 2013.
- Medgar Evers College Library Upgrade—45,750 square feet in the Bedford Building was renovated; \$23 million; completed in 2014.
- CUNY Advanced Science Research Center (ASRC) and City College Center for Discovery and Innovation—400,000 GSF two-building research complex; \$702 million; Kohn Pederson Fox Architects in partnership with Flad Architects; opened in 2014.

CUNY’s most recent capital budget five-year request is more than \$6.8 billion for capital work at all 25 CUNY campuses from fiscal years 2016–2017 through 2020–2021. The capital budget request process



takes more than six months to develop, beginning after the state budget ends in April. Meetings are held with senior staff at every college to discuss the progress of the existing construction projects, priorities, costs, and procurement. Over the summer, FPCM staff refines details of projects, incorporates the results of state and city budgets, and updates scopes and costs. The college presidents then approve their college programs and priorities, which are presented to the CUNY Board of Trustees in October.

The capital program is currently approximately \$3.3 billion in state and city funding—appropriations CUNY has received that can and will be spent. CUNY is in continual communication with the State Division of the Budget as spending progresses. As required, CUNY provides the state with cash-flow plans and details of spending against contracts. There are also state-mandated spending caps. CUNY was authorized to spend \$485 million in fiscal year 2015–2016 and \$600 million in fiscal year 2016–2017.

Major capital projects currently in construction include:

- Baruch Field Building Renovation—284,000 square foot facility built in 1928. Since then, there have been minimal upgrades. The \$90 million initial phase of construction is under way and will include infrastructure upgrades. An additional \$72 million has been requested for the next phase.
- Brooklyn College Performing Arts Center. This facility will include practice rooms dedicated to music, teaching studios, music and theater rehearsal rooms, a new scene workshop, and a new 200-seat performance space. A \$10 million private gift from alumni Leonard and Clare Tow made this project possible. The new performing arts center will open in 2017.
- Graduate Center Ninth Floor Addition—4,000 square feet of the southeast portion of the ninth floor will be renovated to create much-needed multipurpose conference and meeting space. Access will be created from the ninth floor to an outside roof area on the Fifth Avenue side of the building. The new larger venue complements the existing conference spaces on the northeast portion of the ninth floor.
- New York City College of Technology New Academic Building—This 350,000 GSF mixed use facility was designed by Perkins Eastman Architects and will house classrooms, labs, a dental clinic, and a 1,000 seat auditorium. CUNY is managing this project, with completion anticipated in 2017.
- LaGuardia Community College Center 3 Façade Restoration. The seriously deteriorated terra-cotta façade of Center 3 will be replaced with a façade that will provide thermal and moisture-prevention controls and energy efficient windows.
- Queensborough Community College Dining Commons—a 10,000 square foot courtyard in the center of the science building will be covered to create a new cafeteria seating area. Completion is anticipated in 2016.

Major capital projects currently in design include:

- Brooklyn College Roosevelt Hall Science Complex. This project will construct an 180,000 square foot facility dedicated to science instruction in support of the college's academic goal of transitioning to an interdisciplinary teaching model.
- Hunter College Sciences and Health Professions Building. Hunter's health science programs will be moved to a new building near the main campus on East 68th Street. In a public/private partnership with Memorial Sloan-Kettering Cancer Center (MSKCC), 390,000 GSF of instructional and research space will be built on East 74th Street.
- Lehman School of Nursing. This project will construct a 40,000 square foot building to house the new Nursing Education, Research, and Practice Center.

- Queens College Remsen Hall Renovation, Phase II. This \$239 million project will upgrade, modernize, and reorganize the 168,000 square foot Remsen Hall. Renovated lab space will accommodate core research facilities and instructional labs.
- College of Staten Island Interdisciplinary High Performance Computational Center. This 175,000 square foot facility will house a high-performance computer that will serve as a university resource for computer based modeling and simulation. Classroom and research space within the building will support many of the college's academic programs.
- York College Academic Village and Conference Center. This 165,000 square foot facility will become the new home of the School of Business with modern classrooms, computer labs, and conference rooms that will be available for use by the community. It also will serve as the student center.
- Hostos Community College Allied Health and Science Building. The new complex will support the college's allied health programs in dental hygiene, radiologic technology, and nursing, and will house a dental clinic that will provide students with practical experience and the community with expanded services.

Investments in Maintenance

Over the previous two decades, the bulk of capital funding has supported targeted renovations and new facilities, with less investment in preservation of overall physical plants. The age of CUNY's facilities and this history of deferred maintenance has increased the need for a systematic state-of-good-repair program to renew the university's capital facilities. In 2007, each college completed a building conditions survey for all buildings over 5,000 square feet and updated the information in 2012. CUNY's needs, as of 2007, totaled \$4 billion over a 10-year period. The 2012 update put these needs at \$6 billion, due to unmet conditions from the first round, escalation, and continued aging. The state and city responded to the initial request with appropriations of \$1.4 billion to senior colleges and \$400 million to the community colleges, composed of 50/50 matching funds from the state and city. This work includes facilities preservation, HVAC system upgrades, roof replacement, electrical upgrades, elevator and escalator replacement, code compliance and the like. Hundreds of critical maintenance projects have been initiated at the colleges and many more will continue to be initiated over the next four years.

Public/Private Partnerships

Increasingly, CUNY finances and develops new facilities through public/private partnerships. Projects completed since 2012 include the CUNY Law School's new facility, a 240,000 GSF condominium in Long Island City designed by Kohn Pederson Fox Architects that opened in September 2012. Also, Dolphin Cove at the College of Staten Island, a 440-bed residence hall was developed in partnership with American Campus Communities and WDG Architects, and opened in 2013.

Still another such project is the Barry R. Feirstein Graduate School of Cinema at Brooklyn College which, as was noted earlier, is the only film school in America built on a working film lot. It is housed at Steiner Studios in Brooklyn, the largest soundstage complex on the East Coast and home to many movie and television productions. As the first public film school in New York, Feirstein is dedicated to diversity, inclusion, and the cultivation of new and emerging voices in cinema. Classes began in the 56,000 GSF facility in fall 2015. CUNY will continue to explore opportunities for public/private partnerships in order to maximize the value of our assets and increase facilities resources across the university.

NY CUNY 2020

CUNY is a leading catalyst for economic revitalization in New York City and New York State. In 2013, Governor Andrew Cuomo created the NY-CUNY 2020 Challenge Grant Program, with the goal of incentivizing long-term economic development implementation plans, driven by CUNY's colleges in areas of their academic strengths. The capital funds support programmatic needs and provide academically aligned,

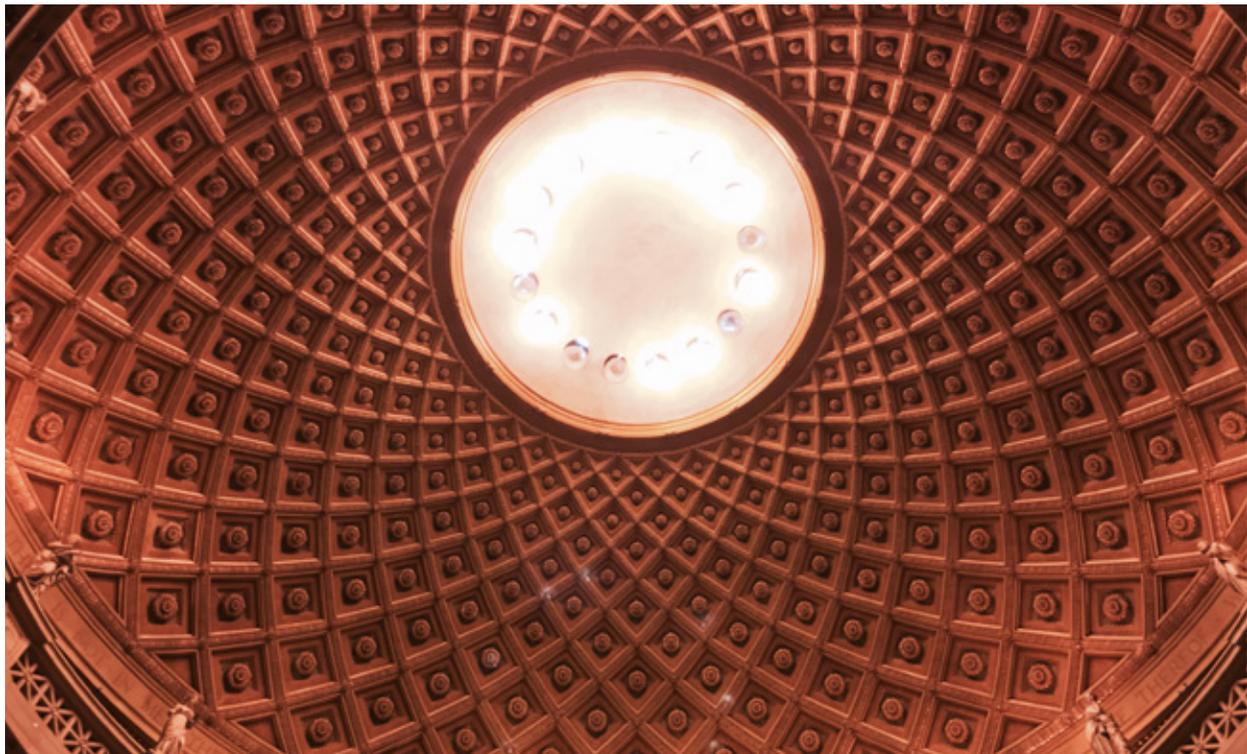
sustainable economic development.

In Round One, \$55 million was awarded to eight projects involving 20 CUNY colleges. These include:

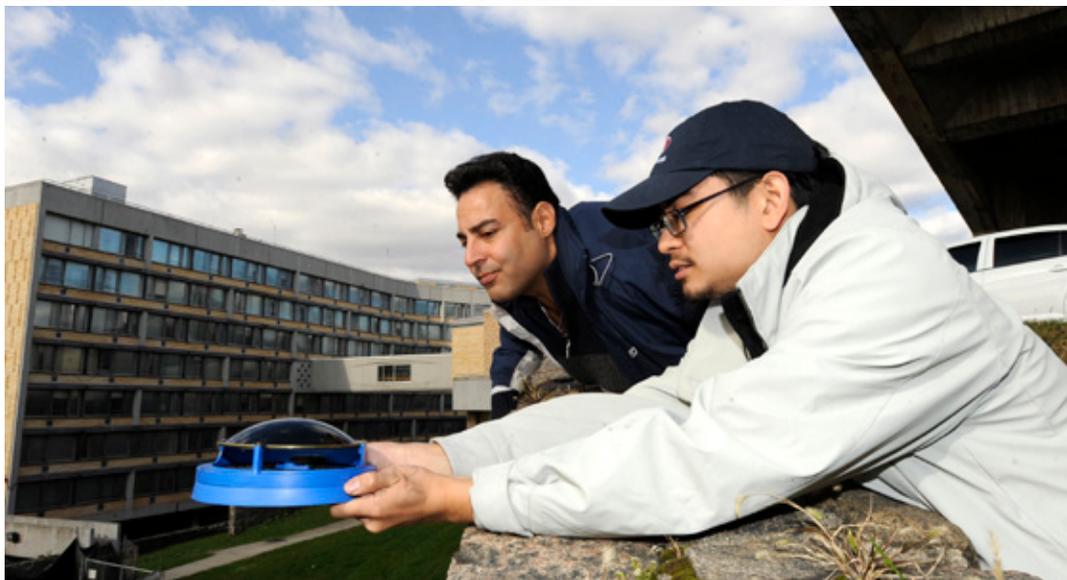
- Science and Resilience Institute at Jamaica Bay—Brooklyn College and Kingsborough Community College.
- Transportation Technology, Sustainable Fuel, and Product Development in New York City—Bronx Community College.
- Big Data Consortium—College of Staten Island and the Graduate Center.
- Allied Health Training for Employment in the Bronx—Hostos Community College.
- 10,000 Small Businesses Education Center—LaGuardia Community College.
- New Media Jobs Incubator and Innovation Lab—Macaulay Honors College, Hostos Community College, and Lehman College.
- Advanced Manufacturing for Economic Development—Queensborough Community College.
- Center for Allied Healthcare Education and Workforce Development—Queensborough Community College.

In Round Two, a second \$55 million will be provided for capital projects with strong economic development goals that complement areas of regional growth in a variety of industries. CUNY institutions have submitted 18 proposals, with all CUNY institutions participating. Awards will be made early 2016.

In Round Three, a third \$55 million in challenge grant funding will be available.



Sustainable CUNY: Modeling New York City's Solar Potential



The NYC Solar Map estimates rooftop solar potential using a computer model that calculates the incoming direct and diffuse solar radiation for every square meter of the City of New York. The model is based on the position of the sun, atmospheric conditions, latitude, and most importantly, shading. Shading is generated from a digital surface model derived from lidar data (light detection and ranging), which captures the surface elevation of the ground, buildings and trees.

The NYC Solar Map is part of Sustainable CUNY. Consisting of three pillars—Sustainable CUNY Conserves, NYC Solar Partnership, and Energy Resiliency—Sustainable CUNY has been serving New Yorkers since 2007 by preparing students for tomorrow's energy challenges and careers, and by developing resilient energy solutions. Due in some part to CUNY's contributions, New York State is now ranked fourth in the country for solar jobs.

ENERGY EFFICIENCY

CUNY has been a leader in its efforts to cut energy consumption and costs at the university and is a significant contributor to local and state sustainability initiatives. Since its inception in 2007, Sustainable CUNY has played a transformative role in New York's sustainable future. Through its three pillars—Sustainable CUNY Conserves, NYC Solar Partnership, and Energy Resiliency—Sustainable CUNY serves New York citizens by preparing students for tomorrow's energy challenges and careers and by leveraging the university's intellectual resources to provide resilient energy solutions. Further, CUNY has been a leader in promoting tremendous growth in solar capacity and jobs in New York. New York State is now ranked fourth in the country for solar jobs.

Sustainable CUNY Conserves reduces energy consumption across CUNY's 26.9 million square feet in over 300 owned buildings, thereby reducing spending on utilities. It provides a platform for sharing best practices, organizing training, deploying data and analytics, and enhancing technology support. This initiative was bolstered in 2012 by CUNY's decision to give senior colleges responsibility for their energy budgets and the opportunity to reinvest savings.

Over the next four years, Sustainable CUNY Conserves will continue to work with CUNY colleges to expand their capability to monitor, control, and reduce energy use. This work will be aided by the Sustainable Investment Fund, a revolving fund created in 2013 to target energy saving projects with short payback times. The Sustainable Investment Fund has awarded projects on 11 CUNY campuses that will generate annual savings estimated at \$1.1 million. In addition, the CUNY Conserves team has assisted colleges in securing awards from ExCEL Environmental Resources and the New York Power Authority (NYPA), as well as funding from the New York State Energy Research and Development Authority (NYSERDA).

Sustainable CUNY formed the NYC Solar Partnership in 2006, leading the Mayor's Office and New York City Economic Development Corporation in implementing renewable energy and economic development plans for solar integration in New York City. Since 2012, Sustainable CUNY has extended this support statewide with NYSolar Smart, which has received more than \$9 million dollars in federal, state, and city funding. NYSolar Smart works in partnership with NYPA, NYSERDA, state municipalities, and more than 30 organizations representing utility companies, installers, government agencies, and industry leaders.

In 2016, in a momentous renewable energy and economic development effort, CUNY launched the NY State Solar Map and Portal, the state's one-stop shop for customers, installers, and municipal leaders for accessing solar information. The map allows New Yorkers to see their roof's solar potential, connect with local solar opportunities, and visualize market data. The map and portal, hosted by CUNY, is expected to be a significant resource for the state for many years to come.

Energy Resiliency is the third pillar of Sustainable CUNY. In early 2013, CUNY convened a large group of stakeholders to form the NYSolar Smart Distributed Generation (DG) Hub. As part of the Hub, CUNY is convening working groups to improve the city's ability to withstand power outages by developing solar power. The work includes coordinated efforts to support resilience through changes in policy, technology, and tools to guide investment in resilient solar systems.

- **A Roadmap for Resilient Solar:** The working groups are addressing the key areas to resiliency integration: policy and legal, economics and finance, hardware technologies, and software and communication technologies. The roadmap will be disseminated in 2016 and 2017, and will include a pathway to integrating several tiers of resiliency.

- **A Resiliency Calculator** will provide decision makers with tools to make educated investments. The team will use the calculator and other resources to assist implementation of real world case studies of installing resilient solar systems on critical infrastructure, such as shelters, schools, hospitals, gas stations,

and food suppliers. First-hand knowledge developed through these experiences will support the creation of a manual called the Critical Infrastructure Resilience Guide.

- **Tracking Resilient Power:** As larger resilient solar systems with storage are installed, a process will be established to enable the tracking of these systems to better inform utility and city planners. Systems that can supply emergency power to the public will be located on the NY Solar Map. These experiences will also inform the Critical Infrastructure Resilience Guide.

ADMINISTRATIVE TECHNOLOGY

CUNY's unique position as a multi-college university located exclusively within one city provides the opportunity and responsibility for tightly integrated systems. CUNY's integration strategy for administrative technology has resulted in economies of scale, common solutions, standardized business practices, increased productivity, and better service to students and faculty.

CUNYfirst

CUNYfirst (CUNY's Fully Integrated Resources and Services Tool) is CUNY's upgraded, integrated system that manages student administrative, human resources, and financial processes university-wide. CUNYfirst's student administrative or campus solution function (which includes enrollment, grading, bursar, financial aid, and work-study payroll) was rolled out to almost every college prior to 2016 with the goal of retiring CUNY's aging systems. The CUNYfirst general ledger, budget and planning, asset management, and procurement, as well as human resources and recruitment functions were also deployed, as were several enhancements to support new requirements in CUNY's general education curriculum, immunization tracking processes, Affordable Care Act information, a virtual bookstore, and changes in the New York State operating systems.

CUNY is now completing the final stages of the CUNYfirst rollout, which include the payroll module, a university-wide admissions system, and CUNYfirst service to the upcoming Medical School and the Graduate School of Public Health. CUNY is also committed to enhancing CUNYfirst to better meet user needs. For example, CUNY will deliver essential CUNYfirst functions on mobile devices. CUNY will also launch CUNYsmart, an enterprise reporting and business intelligence platform that allows users to access, model, and report on validated data across the university.

Infrastructure Technology

CUNY has provided for and supported a university-wide common infrastructure that has improved network speed, application performance access, and reliability. Since 2012, this has been achieved by upgrading equipment for university offices and college sites; increasing Internet Service Provider (ISP) bandwidth; upgrading university administration networks (wired and wireless); upgrading bandwidth at all Bronx and Manhattan colleges and at LaGuardia Community College, Medgar Evers College, New York City College of Technology, Queens College, Queensborough Community College, and York College. CUNY is currently expanding its optical network to include all Brooklyn, Queens, and Staten Island colleges. CUNY will leverage this technology to deploy hybrid cloud services to improve IT service delivery efficiency and disaster preparedness across the university.

Further, CUNY has completed the design for a new state-of-the-art university data center to replace the existing data center. The new design provides capacity for expansion, including the opportunity to offer primary or disaster recovery computing environments to the colleges. CUNY will complete the new data center, migrate applications and operations, and go live by 2018.

CUNY has enhanced university communications through an integrated video conferencing system and a mobile technology integration strategy. CUNY now has a high-speed network and high-definition video-



conferencing technology to support calls with up to 20 sites simultaneously (AV1). The system is being used for hosting multi-site courses and supporting international programs and administrative trip avoidance. CUNY is developing a pilot to leverage the video conferencing system to provide remote sign language interpreters to better serve students who need those services. Going forward, CUNY will continue to expand video conferencing capabilities through enhancements, such as a video portal using a standard web browser that will connect from any device. Expanded video conferencing capabilities will serve both administrative and academic purposes.

Security and Disaster Planning

CUNY has taken several steps to improve the security of its data systems and to protect against disasters. These include establishing information security forums, improving incident reporting and tracking of compliance, disseminating alerts and advisories, and revising a security awareness-training module. CUNY also strengthened its security by implementing anti-phishing technology, applying more rigorous security architecture reviews, and coordinating centralized acquisition of security protections and services. CUNY also designed and launched a comprehensive program to bring professional best practices and a standardized approach to business continuity and disaster recovery (BCDR) planning university-wide. To ensure that primary functions continue to operate in all situations, CUNY is developing a multi-faceted BCDR program.



PERFORMANCE MANAGEMENT AND FUNDING

An important element of good management is to set goals for the organization, attain buy-in for those goals, establish appropriate metrics to measure progress, and hold managers accountable. CUNY has been an early advocate and practitioner of this approach.

Performance Management Process

Since 2001, CUNY has utilized a systematic annual Performance Management Process (PMP) to drive institutional performance related to academic quality, student success, and financial management and administration. The PMP links planning and goal setting, measures annual progress toward key goals, and recognizes excellent performance.

The PMP has united a diverse set of colleges into an integrated university, while still allowing each college to retain its own identity, mission, and governance. Every year, CUNY's chancellor determines the university's performance goals for the upcoming academic year, guided by the master plan. CUNY's individual institutions establish performance targets to measure progress on university goals. In addition, the college presidents and professional school deans, after consultation with campus constituents, articulate additional goals—college focus goals—aligned with their own strategic goals. At the end of the academic year, each institution's progress is reviewed, successful performances are recognized, and future priorities are identified.

Although the PMP cannot be credited with all improvements, trends in important PMP metrics indicate that the process has influenced where and how human, financial, and technical resources have been invested. Some examples include:

- Enrollment has climbed to historic heights, showing a steady upward trend over the past 15 years; head-count enrollment increased by 39 percent since 2001 and FTE enrollment by 44 percent during that same period.
- Graduation rates have improved as noted in Chapter 3.
- Voluntary contributions (as a result of fundraising efforts) rose nearly 300 percent to \$210 million since Fiscal 2001 (and 27 percent since 2012).
- Faculty scholarship rose over the past 5 years with faculty producing more than one peer-reviewed publication or creative work per faculty member per year on average.
- The percentage of minority and women faculty has increased slightly over the past five years (33.2 percent minority faculty in 2014 compared with 32.2 percent in 2010; 48.8 percent women in 2014 compared with 47.5 percent in 2010).
- Percentage of developmental students achieving basic skills proficiency within one year of entry increased from 38.2 percent in 2009 to 49.2 percent for those who entered in 2013, the most recent year for which data are available.
- Transfer rate of associate degree completers (AA/AS) rose to 64.2 percent for 2012–13 graduates from 60.7 percent for 2008–2009 graduates (students transferring within a year of earning the associate degree).

Performance Funding

For 15 years, CUNY's performance management was largely an internally driven process. In 2015, New York Governor Andrew Cuomo tied a portion of state funding to performance. A provision of Governor Cuomo's 2015 Opportunity Agenda allocated \$12 million of the state's total appropriation to CUNY's senior colleges for the submission of institutional performance improvement plans that would advance the following state and university priorities:

- Increase student academic success.
- Expand access to underserved populations.
- Improve academic momentum and degree completion.
- Expand online education.
- Expand the use of digital technology to improve instruction and academic support.
- Strengthen global perspective and practice.
- Grow the research enterprise, including research relevant to the 21st century urban environment.
- Improve workforce preparation and employer engagement.

In October 2015, CUNY's Board of Trustees approved a resolution that established a methodology for allocating the state's \$12 million. CUNY provided an additional \$6 million for community colleges and \$2 million more to be allocated across the two sectors. This performance-funding program, referred to as the *CUNY Strategic Investment Initiative*, awarded the total \$20 million dollars to CUNY colleges for 41 projects that were initiated or expanded during the 2015–2016 academic year. CUNY has been working to ensure that the *Strategic Investment Initiative* and its longstanding PMP process are aligned and that both serve to incentivize colleges to advance state and university priorities.



Concluding Statement

This Master Plan showcases many of CUNY’s major accomplishments from 2012 through 2016 and, importantly, looks ahead to the next four years with plans to capitalize on recent investments and identify what new investments are needed. It reiterates a promise grounded in the founding statutes of the university—the promise to “maintain and expand [the university’s] commitment to academic excellence and to the provision of equal access and opportunity,” and it describes how that promise has been and will be fulfilled.

CUNY’s mission, devised in the 20th century, is no less vital in the 21st century, but the changes over the years—in the student body, in knowledge and culture, in the economic and political landscape of the city and state and nation—have always required periodic reflection and continuing modification. What has not changed is the belief among hundreds of thousands of students that the excellent and affordable higher education offered by CUNY is their best chance for their brightest possible futures.

CUNY recognizes and acknowledges the challenges of this moment. But the successes the university has achieved—in providing access, in degree completion, in student success, in scholarly and creative contributions and research breakthroughs, in partnership with and service to the city and state—will help guide work going forward, despite the disruptions and opportunities presented by globalization and technology. These successes indicate that CUNY is ready to confront the challenges, and will be able to press forward to accomplish the significant work that still needs to be done. It goes without saying that the university’s ability to attain the goals set forth in this plan will be influenced strongly by the availability of the necessary financial resources. CUNY’s Chancellor, James B. Milliken, is articulating his own, distinctive vision for the future as he introduces new directions and initiatives and under his leadership CUNY intends to become the leading urban university in the nation and an engine of opportunity for New Yorkers.

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CUNY by the Numbers

CUNY's 25 institutions include eleven senior colleges, seven community colleges, the William E. Macaulay Honors College, the Graduate School and University Center, the CUNY Graduate School of Journalism, the CUNY School of Law, the CUNY School of Professional Studies, and the CUNY School of Public Health. The newest unit, the CUNY School of Medicine, will open in the fall of 2016.

- CUNY educates 274,000 degree-credit students and has nearly 276,000 adult and continuing education enrollments.
- From certificate courses to Ph.D. programs, CUNY enrolls students in more than 1,600 academic programs.
- CUNY employs more than 43,800 faculty and staff across the university.
- Almost 1.2 million students have earned degrees from CUNY since 1966–67, 29 percent of them—some 398,000 alumni—in the past decade.

- Most CUNY graduates stay in New York State after earning their degrees: 85% of all graduates since 1981 still live in New York State.

- 80% of CUNY undergraduate degree completers graduate with \$0 in student loan debt; more than 60% of full-time undergraduates attend CUNY colleges tuition-free because of federal and state grants and tax credits.

- The top 3 industries employing CUNY bachelor's degree graduates are:

1. Health Care and Social Assistance (27%)
2. Professional, Scientific, and Technical Services (14%)
3. Finance and Insurance (12%)

(based on 2008–09 graduates).

In a single year, all CUNY graduates from 1966–67 to 2014–15 earn \$62.6 billion, compared with \$30.9 billion they would have earned with only a high school diploma. That's \$31.8 billion of value added in a single year.



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THE CITY UNIVERSITY OF NEW YORK

CITY COLLEGE OF NEW YORK-1847
 HUNTER COLLEGE-1870
 BROOKLYN COLLEGE-1930
 QUEENS COLLEGE-1937
 NEW YORK CITY COLLEGE OF TECHNOLOGY-1946
 COLLEGE OF STATEN ISLAND-1956
 BRONX COMMUNITY COLLEGE-1957
 QUEENSBOROUGH COMMUNITY COLLEGE-1959
 CUNY GRADUATE CENTER-1961
 BOROUGH OF MANHATTAN
 COMMUNITY COLLEGE-1963
 KINGSBOROUGH COMMUNITY COLLEGE-1963
 JOHN JAY COLLEGE OF CRIMINAL JUSTICE-1964

YORK COLLEGE-1966
 BARUCH COLLEGE-1968
 LAGUARDIA COMMUNITY COLLEGE-1968
 LEHMAN COLLEGE-1968
 HOSTOS COMMUNITY COLLEGE-1970
 MEDGAR EVERS COLLEGE-1970
 CUNY SCHOOL OF LAW-1983
 MACAULAY HONORS COLLEGE AT CUNY-2001
 CUNY SCHOOL OF PROFESSIONAL STUDIES-2003
 CUNY GRADUATE SCHOOL OF JOURNALISM-2006
 GUTTMAN COMMUNITY COLLEGE-2011
 CUNY GRADUATE SCHOOL OF PUBLIC HEALTH
 AND HEALTH POLICY-2016
 CUNY SCHOOL OF MEDICINE-2016

