CUNYSTART

A Resource Guide for Reforming Developmental Education in the College Transition Space

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CUNY

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PREFACE

Developmental education reform has been at the forefront of the national higher education conversation for more than a decade. Based on compelling data that consistently demonstrates that students are not well served in traditional, standalone zero-credit remedial courses, there has been a flurry of activity across the country to replace these interventions with targeted, evidence-based offerings that allow students (especially low-income students and students of color who are disproportionately short-changed by the structural educational inequities cemented even into the most progressive P-12 systems) to move into and through their degree pursuits in a timely manner.

CUNY Start is one such evidence-based offering and emblematic of CUNY's commitment to meet the needs of all learners and to provide a pathway into the University for every student in order to improve their upward mobility. CUNY Start students are among the least prepared students to arrive at our colleges, specifically associate-degree seeking students determined to have significant needs in reading, writing, and mathematics. Many years of national research and evaluation have found that such students typically struggled mightily, resulting in low retention, persistence, and graduation rates. In the great CUNY tradition, however, we knew that where a student begins does not and should not define their future prospects.

The educators who designed CUNY Start — master teachers and professional developers from our longstanding adult literacy division — knew that with the right supports and structures we could change this narrative. With a deep commitment to careful curriculum development, rigorous teacher training, and cutting-edge pedagogy, CUNY Start demonstrates every day what is possible when vision and will come together with an abiding belief in the limitless potential of our students. The program's unabashed success and consistent pass rates over the past 11 years, undergirded by robust evaluation, are why CUNY Start is part of our bold reimagining of developmental education to fully eliminate standalone traditional remedial interventions in favor of evidence-based prematriculation and corequisite offerings by fall 2022.

I am proud to share this resource guide with fellow educators looking for solutions to their own developmental education challenges. We hope that CUNY's experience may inspire other institutions to examine their own developmental education activities and that the lessons learned from CUNY Start will be a guide to how to better support students who arrive inadequately prepared for college.

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OVERVIEW

The City University of New York (CUNY) is the largest urban public university system in the United States, with approximately 100,000 students enrolled in associate degree programs that are offered at 10 of CUNY's 19 undergraduate colleges (these 10 colleges are comprised of 7 community colleges that offer only associate degrees, and 3 comprehensive colleges that offer both associate and bachelor's degrees). Similar to trends nationwide, many associate degree students come to CUNY underprepared for college-level classes and are required to have additional instruction in at least one basic skills subject area (i.e., remediation or developmental education) in reading, writing, or mathematics. Most of these students never complete their remedial coursework, much less earn a college degree.

In 2009, CUNY launched CUNY Start, a multifaceted prematriculation program, to address these challenges and to help underprepared students make a successful transition to college. CUNY Start incorporates a variety of strategies aimed at addressing students' remedial needs, including a carefully designed curriculum and pedagogy, integrated student supports, a structured teacher training and teaching delivery protocol, and a commitment to research and evaluation in order to inform continuous program improvement. CUNY Start provides students entering CUNY who are assessed as having significant remedial needs with preparation for college-level reading, writing, and math, as well as a college success seminar.[1] CUNY Start's goals are to help students reduce or eliminate their remedial needs prior to matriculation, prepare them for college-level coursework, and improve academic outcomes once they matriculate.

Rigorous external evaluation of CUNY Start is underway. The program is part of a five-year random assignment study funded by the US Department of Education Institute of Education Sciences (USDOE IES), a study that is led by MDRC in partnership with the Community College Research Center (CCRC) at Teachers College, Columbia University, and with CUNY. The study's objectives are to estimate the effect of CUNY Start on students' academic outcomes and determine whether these effects vary by population and context. Preliminary results reported in *Becoming College Ready* were positive and indicated that students invited to join CUNY Start became eligible to take credit-bearing courses faster than control students.[2] The study investigated the implementation of CUNY Start compared to traditional remedial education, as well as the extent to which CUNY Start is implemented with fidelity to the program model across campuses and classrooms.[3] Findings featured in *Becoming College Ready* indicated a high level of implementation fidelity, as well as substantial differences between the implementation of CUNY Start as compared to traditional remedial classes.

As part of this IES funded research project, this resource guide has been developed for college administrators, faculty, and other key stakeholders interested in exploring the CUNY Start approach to remediation. The guide describes the CUNY Start program model, the use of research and evaluation practices, and the program's incorporation into large-scale changes to remedial policy at CUNY. When thinking about the launch of an initiative or program such as CUNY Start, it is important to note that this program was designed as a comprehensive and holistic approach to preparing students to enter and succeed in college. The intentional coordination of all the program elements requires significant contributions from, and collaboration with, a variety of different offices and units within each college, as well as, in the case of a system such as CUNY, at the system-wide level. The University's 21st-century mission remains true to its founding principles of academic excellence, scholarship, and opportunity for all, while remaining responsive to the needs of its urban setting.

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[1] CUNY Assessment Tests have been used to determine student proficiency in reading, writing, and math. In spring 2020, the University will be using a multiple measures algorithm, taking into account a student's high school academic performance including GPA, SAT/ACT scores, and Regents exam scores, to determine proficiency. https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/registrar/resources/Changes-in-CUNY%E2%80%99s-Remedial-Assignment-Practices-for-Spring-2020-Admissions-12132018.pdf

[2] Scrivener, et al, 2018.

[3] For more information, visit https://www.mdrc.org/project/addressing-students-remedial-needs-evaluation-cuny-start-and-other-strategies#overview.

INTRODUCTION

In part because of their open access admission policies and relative affordability, community colleges provide an important pathway into higher education. Nationally, 38 percent of all undergraduates were enrolled in community colleges in 2016-17, and nearly half (49%) of all students who earned a degree at a four-year college in 2015-16 had enrolled at a community college in the previous 10 years.[4] Community colleges are especially critical institutions for serving large numbers of historically underrepresented student populations, e.g., ethnic minorities, first-generation students, and students from low-income households. The City University of New York (CUNY) is the largest urban public university system in the United States, enrolling more than 250,000 degree-seeking students at 25 colleges and free-standing professional schools across New York City's five boroughs. At CUNY community colleges, 37 percent of students are born outside of the United States, 39 percent have household incomes below $20,000, 66 percent are Pell grant recipients, more than 65 percent are first-generation college students, and almost 81 percent of CUNY's first-time freshmen are graduates of the New York City public schools.[5]

One of the major challenges facing community colleges is the large numbers of students who enter underprepared for college-level work based on a placement test assessment. At CUNY, approximately 65 percent of associate degree-seeking students arrive with such an assessment in at least one subject area.[6] These students would typically be referred to traditional remedial education, in which they must complete non-credit, basic skills courses in reading, writing, and/or math. Research has shown that the length and the number of potential exit points of remedial course sequences and the financial burden of taking noncredit courses are two of the factors contributing to the low success rates of students entering college with assessed remedial needs. Traditional remedial courses have unusually low pass rates, and it can take multiple semesters for students to complete the multilevel sequences (if they complete the sequences at all, which most students do not), resulting in increased attrition, mounting tuition costs, and the expenditure of limited financial aid resources.[7] Nationally, it is not surprising that only 17 percent of students who enter college with assessed remedial needs will go on to complete their degrees.[8]

CUNY Start is one of several major reform efforts supporting CUNY's goal of eliminating traditional remediation by 2022.

The discouraging student outcomes associated with traditional remediation have led many institutions across the country, including CUNY, to explore and implement alternative approaches to developmental education. CUNY has set forth an ambitious goal of eliminating traditional remedial courses by 2022, and in pursuit of this goal has supported the expansion of corequisite courses, math pathways in which students take particular quantitative courses aligned with their interests and goals, and the use of multiple measures of proficiency assessment in lieu of traditional placement testing. Although these reforms show promise in reducing the number of students stymied by traditional developmental education courses, many students continue to struggle to meet proficiency in a timely manner, which ultimately impacts degree completion. CUNY Start offers students an alternative path to proficiency and is designed to support the University's most underprepared students by intensively addressing their remedial needs before they officially enroll in a degree program. Unlike the alternative interventions remedial options listed above that CUNY has been expanding usage of, CUNY Start operates by having students defer matriculation for one semester to focus on building essential math and English skills, thereby maximizing their ability to engage in college-level courses once matriculated.

CUNY Start launched in 2009 as a pilot at two community colleges, LaGuardia Community College in the borough of Queens and Kingsborough Community College in the borough of Brooklyn. The program initially targeted High School Equivalency (formerly GED) diploma recipients (students who have received a diploma by passing an exam), in part because of CUNY research that showed that these students were being assessed as substantially less prepared for college than traditional NYC public high school graduates.[9] Encouraged by positive early results, the program also began admitting recent traditional high school graduates and expanded to additional colleges. CUNY Start has now served over 22,000 students and currently enrolls more than 3,000 students annually. Today, the program is offered in all five New York City boroughs and at nine CUNY colleges: Borough of Manhattan Community College, Bronx Community College, College of Staten Island, Guttman Community College, Hostos Community College, Kingsborough Community College, LaGuardia Community College, New York City College of Technology, and Queensborough Community College.

The University's internal evaluation of the program has provided initial suggestive evidence that participation has a positive impact on students' academic outcomes. This analysis, which compared the outcomes of CUNY Start students with the outcomes of similar students who did not enroll in the program using a quasi-experimental design (propensity score matching), found that CUNY Start students were more likely to achieve proficiency in basic reading, writing, and math skills, and were more likely to take and pass gateway courses in math and English in their first year after entering the program.[10] Preliminary findings from a randomized control evaluation of CUNY Start also found that CUNY Start students made more progress towards proficiency, had higher rates of re-enrollment, and attempted more college credits in the second semester than the control group.[11]

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[4] Community College Research Center. https://ccrc.tc.columbia.edu/Community-College-FAQs.html.

[5] CUNY's Office of Institutional Research and Assessment. http://www.cuny.edu/about/administration/offices/oira/institutional/data/current-student-data-book-by-subject/

[6] Ibid.

[7] Edgecombe, 2011; Bailey, Jeong, & Cho, 2010; Bettinger & Long, 2009.

[8] Complete College America. http://completecollege.org/spanningthedivide.

[9] CUNY Office of Institutional Research and Assessment, http://www2.cuny.edu/wp-content/uploads/sites/4/media-assets/NYC_GED_Presentation_Revised_2008_12_05.pdf.

[10] Allen & Horenstein, 2013; Webber, 2018. Note: these results include the CS semester as students' first semester – so the results are not lagged or limited to only students who entered a degree program

[11] Schrivener, et al, 2018.

Program Model and Structure

CUNY Start is an affordable semester-long program that enables students to address their remedial needs prior to enrolling in a degree program. Students delay matriculation to receive intensive preparation in reading, writing, and math, as well as to receive college success advisement, and uses a cohort model in order to coordinate academic and advisement support. Class sizes are capped at 25 students, and advisors have relatively small caseloads of approximately 75 students each. CUNY Start offers both a full-time and a part-time program and students can enroll in either the fall or spring semester. Full-time students attend 25 hours per week and receive instruction in both math and reading/writing and attend a college success seminar. Part-time students attend 12 hours per week and receive instruction in either math or reading/writing and attend a college success seminar. Both the full-time and part-time programs consist of two phases: twelve weeks of core instruction followed by an assessment of student proficiency, and an additional three to six weeks of instruction based on students' remaining assessed remedial needs.

The prematriculation structure allows the program the flexibility needed to hire staff, offer extensive professional development and training to instructors and support staff, and implement the program's unique curriculum and pedagogical approach, while still ensuring that the program is connected to the University's policies and practices that determine proficiency and placement. Students have up to two opportunities to meet CUNY's academic proficiency standards within the semester. Students who complete the program, but do not meet proficiency, are allowed to matriculate and enroll in either the highest-level remedial course or a corequisite remedial course.

CUNY Start operates with the support of state and city funds which allows the program to be offered to students at low costs.[12] Students pay $75 to participate, which enables them to save tuition and financial aid dollars for credit-bearing coursework leading toward a degree. Traditional textbooks are not used in CUNY Start classes, keeping program costs low, and all instructional materials are provided free of charge to students. Students who commit to continue their education by enrolling into CUNY's Accelerated Studies in Associate Program (ASAP)[13] are offered Metrocards, which is funded through ASAP (more information about the CUNY Start/ASAP connection can be found in the last section of this guide).

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[12] https://www.budget.ny.gov/pubs/archive/fy19/exec/fy19book/HigherEducation.pdf.

[13] ASAP is a nationally recognized college completion initiative that helps matriculated students earn associate degrees within three years by providing a structured degree pathway and wraparound supports such as MetroCards, tuition waivers, textbook vouchers, and dedicated advisement. http://www1.cuny.edu/sites/asap/

Administrative Oversight and College Staffing

CUNY Start functions as a single University-wide program that operates across nine colleges. A team of administrators and professional developers within the CUNY Central Office of Academic Affairs supports college staff in overall program management and implementation. Central Office staff are responsible for fiscal oversight and budgeting, data management and reporting, and curriculum oversight. They also provide professional development and training for all instructors, advisors, tutors and writing assistants, support student recruitment, oversee program data management, and conduct research on program impact and effectiveness. College staff are responsible for the day-to-day operations of CUNY Start at their colleges, including student recruitment, classroom instruction and advisement, data collection, and the establishment and cultivation of intra-college partnerships. Ongoing communication between Central Office staff and college staff is essential to program success. A variety of communication strategies are used, including monthly administrators' meetings, regular emails, training sessions, and program-wide staff development days.

The success of CUNY Start and its students also depend on the strong support of University and campus leadership as well as the strategic coordination among multiple college offices/departments and other academic support programs. CUNY Start college staff work closely with their admissions, enrollment, and testing offices to obtain student referrals and meet enrollment targets. College staff also ensure that appropriate office and classroom space are allocated to the program and that CUNY Start students have access to the same services and facilities as matriculated students (libraries, computer labs, athletic facilities, counseling services, etc.). Central Office staff coordinate with various University administrative offices, including enrollment management, institutional research, and testing, and advise University Leaders on policy decisions so that implementation of the CUNY Start program is uniform across the various colleges.

CUNY Start college staff also work with their registrars to standardize the recording of students and courses in CUNY's administrative databases, which is necessary for accurate fiscal and institutional research reporting (CUNY Start students are enrolled as nondegree students and are matriculated to the college upon completion of the CUNY Start program). Proper student and course coding also facilitates a smooth transition when students matriculate; otherwise, students may have difficulty registering for courses and accessing their financial aid.

Enrollment and Outreach

The CUNY Start Central Office works together with college staff to set enrollment targets in advance of every new fiscal year. Enrollment targets are informed by an analysis of University need (e.g., the number of entering students with remedial needs) and program capacity. Each summer, CUNY Start programs submit a written annual recruitment plan to the Central Office that highlights strategies to achieve enrollment targets. Specific marketing and outreach strategies include the following:

- Obtaining lists of eligible students from the testing or admissions offices, and then contacting these students directly via email, mail, phone calls, and text messages;
- Joining college orientation and registration events and meeting incoming students in person;
- Using social media, the CUNY Start website, and brochures/flyers to promote the program; and
- Coordinating outreach efforts with various offices within the New York State Education Department and the New York City Department of Education, and with local and community-based organizations.

CUNY Start college staff members work closely with their colleges' offices that support enrollment (Admissions, Freshmen Services, Testing, etc.) in order to identify and reach out to incoming college students (both high school graduates and High School Equivalency diploma recipients) who have significant assessed remedial needs.[14, 15] To be eligible for CUNY Start, students must have:

- Earned a high school or High School Equivalency diploma;
- Applied to CUNY and have been accepted to a CUNY college[16];
- Been assessed as needing development in reading, writing, and/or math[17];
- Entered CUNY as a first-time freshman or with a limited number of earned credits; and
- Agreed to defer matriculation for one semester and commit to an intensive academic schedule.

Once eligible students are identified by a college, they are referred to the CUNY Start program for more information. Prospective CUNY Start students are invited to attend an information session at which they can learn more about the program, including its benefits, schedule, and expectations, and how the program differs from traditional remedial education in terms of cost, overall structure, and time. College staff members also meet with students to identify any challenges that may prevent them from attending the program, such as conflicting work hours, child care responsibilities, or housing issues. The program has found that individual conversations with students help to identify other issues, such as the need for accommodations or having come from foster care, which may provide CUNY Start staff with useful information needed to support the students once enrolled. Since students must defer matriculation to participate in CUNY Start, enrolling in the program is presented as an option for students and not as a requirement to enter CUNY.

Student Profile (Fall 2018)	CUNY Community College First time Freshman*	CUNY Start**
Enrollment (N)	18,512	1,930
Female	52.0%	54.0%
Race Ethnicity		
Asian	13.7%	6.9%
Black	29.6%	24.3%
Hispanic	45.0%	31.4%
White	11.2%	6.9%
Other/Mixed Race	–	17.7%

[14] The program characterizes students with significant remedial needs as those who require remediation in multiple subject areas and/or would require multiple levels of remediation in any one subject area.

[15] CUNY Start is not designed to serve English as a Second Language (ESL) learners. Students not fluent in English may participate in CUNY's Language Immersion Program (CLIP) prior to enrolling in CUNY Start. See http://www2.cuny.edu/academics/academic-programs/model-programs/cuny-college-transition-programs/cuny-language-immersion-program-clip for more details on the CUNY CLIP program.
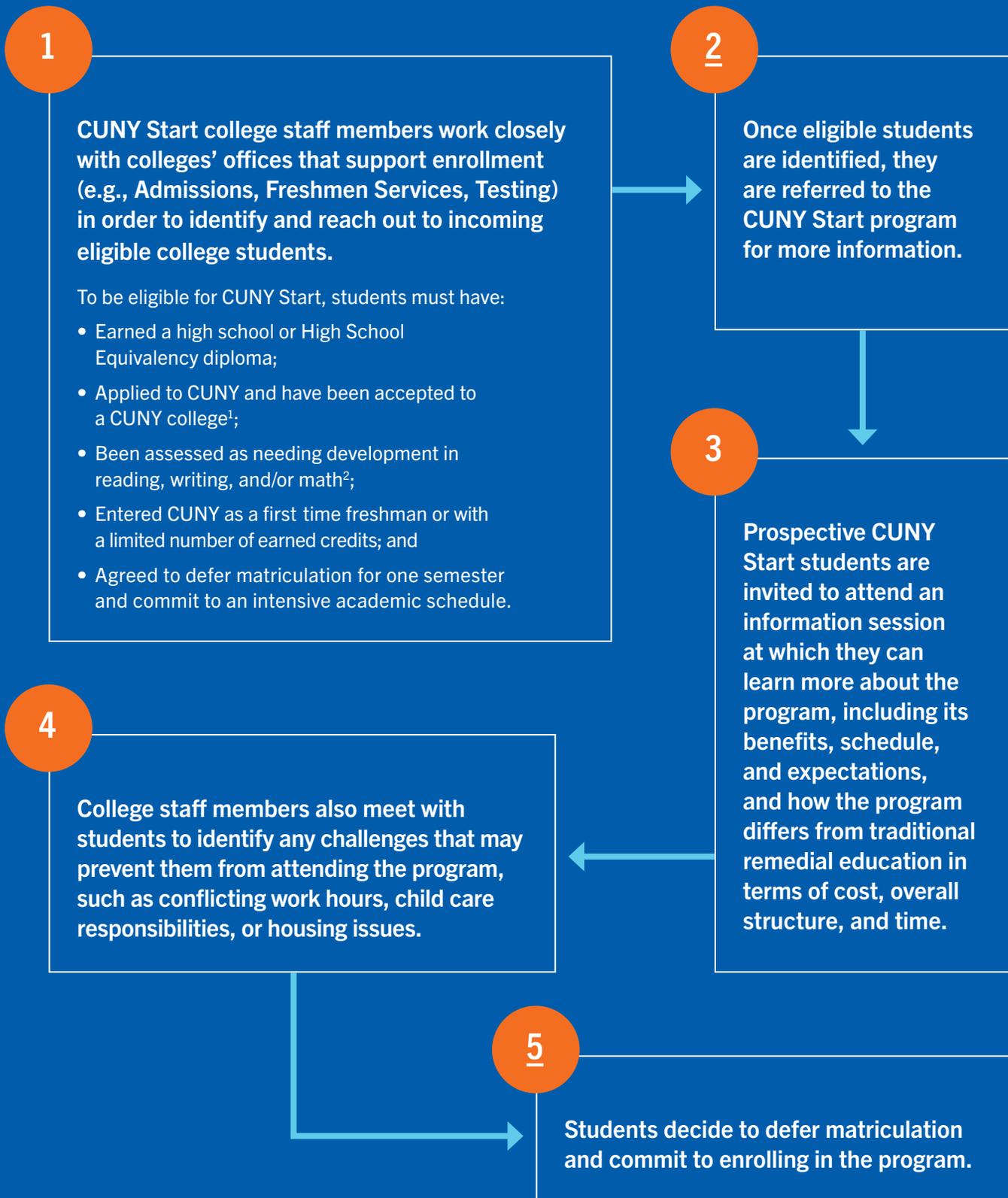
[16] Most students matriculate to the same college as where they enrolled in the CUNY Start program. However, some students may opt to enroll in a CUNY Start program that is not the same as their intended college of matriculation for logistical reasons. CUNY Office of Research, Evaluation, and Program Support, 2019, unpublished data.

[17] Beginning spring 2020, CUNY will no longer use placement tests in math and English to determine proficiency, but will calculate a proficiency index score for students based on previous academic performance and standardized test scores. https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/registrar/resources/Changes-in-CUNY%E2%80%99s-Remedial-Assignment-Practices-for-Spring-2020-Admissions-12132018.pdf.

* Source CUNY Office of Institutional Research and Assessment. http://www.cuny.edu/about/administration/offices/oira/institutional/data/current-student-data-book-by-subject/.

** Source CUNY Office of Research, Evaluation, and Program Support, CUNY Start Program Database

ENROLLMENT STEPS

1 CUNY Start college staff members work closely with colleges' offices that support enrollment (e.g., Admissions, Freshmen Services, Testing) in order to identify and reach out to incoming eligible college students.

To be eligible for CUNY Start, students must have:

- Earned a high school or High School Equivalency diploma;

- Applied to CUNY and have been accepted to a CUNY college[1];

- Been assessed as needing development in reading, writing, and/or math[2];

- Entered CUNY as a first time freshman or with a limited number of earned credits; and

- Agreed to defer matriculation for one semester and commit to an intensive academic schedule.

2 Once eligible students are identified, they are referred to the CUNY Start program for more information.

3 Prospective CUNY Start students are invited to attend an information session at which they can learn more about the program, including its benefits, schedule, and expectations, and how the program differs from traditional remedial education in terms of cost, overall structure, and time.

4 College staff members also meet with students to identify any challenges that may prevent them from attending the program, such as conflicting work hours, child care responsibilities, or housing issues.

5 Students decide to defer matriculation and commit to enrolling in the program.

CURRICULUM AND PEDAGOGY

CUNY Start uses a specially designed curriculum and unique pedagogical approach that were developed for High School Equivalency (HSE) students by instructional experts from CUNY's Adult Literacy and Education Division. These instructional experts believed that the traditional lecture methods for HSE and post-HSE students were not effective in preparing them for college. Unlike traditional lecture-based instruction, CUNY Start's instructional approach is student-centered, encourages learning and independent thinking through the use of strategic questioning, exploration, and collaboration with peers, and is updated periodically with feedback from teachers and advisors. Across all content areas—reading, writing, and math— the CUNY Start program believes that students must be active in the classroom in order to learn most effectively, and emphasizes "student talk" over "teacher talk." As active participants in the classroom, students take charge of their own learning and engage in classroom activities that demand their consistent input and collaboration, which is intended to increase the likelihood of their success.

The CUNY Start classroom culture stems from intentional work to build a receptive and encouraging learning environment. Teachers and advisors model an attitude of tolerance, open-mindedness, and patience in order to build a respectful and trusting classroom community that will help students feel comfortable taking chances and making mistakes.

Students take charge of their own learning.

Reading and Writing

The CUNY Start program believes that learning to read and write better are evolving, interconnected, ongoing efforts, without endpoints. CUNY Start's reading/writing course was designed to use an interdisciplinary curriculum to help students build key reading and writing skills and broaden their general background knowledge. As a result, student progress and achievement are not linear, and teachers are less concerned with students reaching a "correct" interpretation of a text or writing a perfect essay, and instead are more vested in teaching students a process that builds students' confidence and grit. As students become aware of and begin to incorporate the processes of expert readers and writers, their own practices and skills improve over time.

CUNY Start reading/writing teachers make use of "cognitive apprenticeships" to help students improve their reading and writing skills. Key elements of these apprenticeships include modeling, scaffolding, "fading," and coaching.[18] Through modeling, teachers think aloud, demonstrating the thought processes used to arrive at reading or writing interpretations. Instructors provide scaffolding—instructional support and tools, such as essay templates, question starters, and use of repetition—that enables students to complete increasingly sophisticated tasks. "Fading" describes the method by which teachers remove support slowly over time while encouraging students to take on increasing responsibility for their own learning. CUNY Start teachers coach students by providing extensive oral and written feedback to support and guide students through class activities.

CUNY Start's reading/writing curriculum consists of three major strands or units: Language & Thinking (L&T), Coming of Age (or a Psychology curriculum), and the CAT-W (CUNY Assessment Test – Writing) curriculum, which scaffolds writing in response to CAT-W prompts.[19] In the L&T unit, students respond

to memoir pieces in personal ways, reflect on their own challenges, successes and ways of learning, and begin to use academic strategies such as annotating and metacognitive logging. In the second unit, Coming of Age (or Psychology) students move away from personal responses to more academic ways of responding to texts. Towards the end of the course, students are introduced to and begin writing responses to CAT-W-like prompts through carefully designed lessons that begin with basic summaries and brief responses. Practice essays are heavily modeled and scaffolded at the beginning of the semester, but gradually students take on more responsibility for completing, revising and editing their work. Since students often write and revise in class, teachers have the opportunity to coach and conference with students during the writing process. Students read fiction and nonfiction, including challenging texts, to prepare for college coursework. Skill development includes the close reading, summarizing, and interpretation of text; grammar and mechanics in context; argumentative and analytic writing; and other college-level reading and study skills.

It is important to note that although the pedagogical approach utilized by CUNY Start helps students develop essential reading and writing skills necessary for college-level work, the curriculum was not intended to support, nor is it appropriate for, students with significant English as a Second Language (ESL) needs. Key elements of the program's pedagogy are that students must be able to ask and answer questions and work collaboratively with other students in English so the program works best for students who have a clear understanding of oral and written English. Additionally, the fast pace and intensity of CUNY Start requires that students can communicate in English.

[18] Collins, Brown, & Newman, 1989; Collins, Brown, & Holum, 1991; Wilhelm, 1995; King, 1992.

[19] The CUNY Assessment Test in Writing, known as the CATW, is a 90-minute essay test which requires students to respond to a brief nonfiction passage by writing a summary of the passage and responding to the author's argument. The use of the CATW for determining proficiency will no longer be used starting in Spring 2020. The CUNY Start Reading/Writing curriculum is being updated to reflect this.

COGNITIVE APPRENTICESHIPS

CUNY Start reading/writing teachers make use of "cognitive apprenticeships" to help students improve their reading and writing skills. Key elements of these apprenticeships include modeling, scaffolding, "fading," and coaching.[1]

MODELING

The teacher demonstrates a task explicitly so that students can experience and build a conceptual model of the task at hand. For example, a math teacher might write out explicit steps and work through a problem aloud, demonstrating the procedural knowledge.

SCAFFOLDING

Scaffolding is the act of applying strategies and methods to support the student's learning. These supports could be teaching manipulatives, activities, or group work. The teacher may have to demonstrate parts of the task that the student is not yet able to do.

FADING

Fading involves giving students room to problem solve on their own and teaching student's exploration strategies. The former requires the teacher to slowly withdraw the use of supports and scaffolds not only in problem solving methods, but problem setting methods as well. The latter requires the teacher to show students how to explore, research, and develop hypotheses. Fading allows the student to frame interesting problems within the domain for themselves and then take the initiative to solve these problems.

COACHING

Coaching involves observing a student's task performance and offering feedback and hints to help the students develop the academic skill. The teacher oversees the student's tasks and may structure the task accordingly to assist the student's development.

[1] Collins, Brown, & Newman, 1989; Collins, Brown, & Holum, 1991; Wilhelm, 1995; King, 1992.

Math

The CUNY Start math curriculum is intricately connected to the program's pedagogy and professional development. The math curriculum is more than just a set of problems and learning objectives—it is a set of interrelated lessons that includes over 1,000 pages of math activities, instructional notes, and assessments, infused with the program's pedagogical beliefs, values, and practices. CUNY Start's math course emphasizes conceptual understanding through in-depth study of core pre-algebra and algebra topics, including functions in both realistic and abstract contexts. Students investigate mathematical relationships, develop problem-solving skills rooted in math concepts, and explain their reasoning in a collaborative learning environment. The math curriculum also emphasizes applications of what students are learning in the classroom to situations outside of the classroom.

In order to advance students' understanding of mathematical concepts, CUNY Start math teachers' work is grounded in student-centered instruction, questioning, and the development of conceptual understanding.[20] Teachers ask students to explore, explain, and discuss ideas among themselves, encouraging different methods of solving problems; they ask meaningful, open-ended questions to stimulate student thinking and discussion, providing as few direct statements and answers as possible; and they emphasize the in-depth understanding of mathematical concepts, rather than the memorization and recitation of rules and answers. Qualitative analysis conducted by CCRC as part of this larger IES study alludes to the importance of the CUNY Start instructional model, particularly for math, as an important factor in students' success.[21]

Instructor Hiring, Training, and Professional Development

Hiring fully dedicated staff and providing extensive professional development are critical to the successful implementation of CUNY Start's curriculum and student-centered teaching practices. The program hires instructors and advisors based on their content and pedagogical knowledge, their willingness to adopt CUNY Start's unique pedagogical approach, and their interest in working with students who need significant academic and nonacademic support.

All CUNY Start instructors begin their work in the program with a semester as a "cooperating teacher" in which they serve as a paid apprentice to an experienced expert teacher (i.e., Lead Teacher) observing how the curriculum and pedagogy can be effectively delivered in the classroom. In addition to in-class training and weekly meetings outside of class, cooperating teachers learn how socio-emotional supports can be woven into class, and how students' identities as learners can transform over the course of a semester. Cooperating teachers also lead lessons and receive regular feedback on their progress throughout the semester. In weekly meetings with a Central Office professional developer, cooperating teachers study and discuss curriculum activities before they see them take place in class, which helps to identify key learning objectives, anticipate challenges and student confusion, and develop strategies to target those objectives and address any potential areas of confusion. They also take part in weekly meetings with their lead teacher to reflect on what transpired in classes they observed. In these meetings, cooperating teachers share evidence of student thinking, analyze choices the lead teacher made, assess the level of student understanding that was demonstrated, and discuss classroom dynamics.

Beyond that initial semester as a cooperating teacher, CUNY Start instructors continue to receive individual coaching from members of the Central Office professional development team, including classroom observations, and both verbal and written reflections. The program also provides ongoing professional development for all instructional, advisement, and administrative staff where they can share best practices with their colleagues from other CUNY Start programs.

Student Supports

Offering comprehensive student supports is essential to improving student learning and success. CUNY Start provides students with a number of academic and non-academic supports, including the presence of a math tutor or writing assistant in the classroom, a weekly "College Success" seminar that teaches strategies for navigating college life and transitioning to college-level coursework, and one-on-one advising as needed. CUNY Start advisement is fully integrated into all aspects of the program. CUNY Start advisors, who have caseloads of approximately 75 students, lead the weekly hour-long College Success seminar, communicate regularly with instructors about students' progress, and work with students individually outside of the classroom to help them successfully complete the program and develop a plan for excelling in their first year of college and beyond. Specific topics covered during the seminar and individualized advising sessions include time management, problem-solving, college communication skills, researching and selecting a major, and applying for financial aid.

Advisement is integral to the CUNY Start program, with an approach that incorporates holistic engagement, questioning, and collaboration—all informed by the concept of growth mindset.[22] CUNY Start advisors

are involved throughout the entire pre-matriculation student cycle, and support students' academic and personal growth by helping them improve their communication, as well as their critical thinking and problem-solving skills. Advisors ask students meaningful questions to encourage self-reflection and thinking about ideas central to college success and goal achievement. CUNY Start advisors work together with other CUNY Start staff, and staff at the campus and in the community to share information on students' progress and help students overcome any challenges they may be experiencing.

> "
> I want to encourage students to think about their growth as an individual. What does it mean to be a successful student? What are the habits that I need to put in place? What are the practices, what are the routines?"
>
> **CUNY START ADVISOR**

[20] Stigler, Givvin, & Thompson, 2010; Kilpatrick, Swafford, & Findell; 2001.

[21] Bickerstaff & Edgecombe, 2019; Bickerstaff & Cormier, 2019.

[22] Dweck, 2008.

DATA MANAGEMENT AND PROGRAM EVALUATION

CUNY Start is committed to the use of data to measure program effectiveness and improve program practice. As part of this commitment, CUNY Start partners with University departments—CUNY's Office of Database Management and Analytics (DMA) and CUNY's Office of Research, Evaluation, and Program Support (REPS)—to implement comprehensive data collection and management practices, and to carry out the program's research and evaluation objectives. DMA and REPS are offices situated within CUNY's Office of Academic Affairs. These offices provide data management and evaluation services to many of the University's centrally-administered educational and workforce development initiatives.[23] DMA, REPS, and CUNY Start program staff have a formal researcher–practitioner partnership and maintain consistent lines of communication.

This collaborative effort enables the program to collect and manage data, set program benchmarks, and execute a comprehensive performance monitoring and evaluation agenda.

Data management and program evaluation have been top priorities of CUNY Start since it began. Today, the program is supported by a robust, interactive data management system. CUNY Start staff regularly review data to assess program practices, measure progress toward specified benchmarks, and identify opportunities for improvement. These practices have been instrumental in informing how CUNY Start staff present the program to prospective students and how key decisions around program scaling and program modifications are made. Moreover, the strong data management culture that has been established has facilitated the program's ability to engage in robust external evaluations and contribute to the University's work on remediation reform.

Ongoing assessment practices are instrumental in informing how CUNY Start staff present the program and how key decisions are made.

[23] See http://www2.cuny.edu/about/administration/offices/evaluation for more information on REPS and DMA.

Data Collection and Management

CUNY Start, DMA, and REPS work together to establish systematic data collection and management practices. These procedures are designed to be sustainable and scalable, provide ready access to data for CUNY Start staff, and support long-term evaluation. As mentioned previously, CUNY Start staff work with college registrars to standardize the recording of CUNY Start students and courses. CUNY Start enrollments are reflected in the CUNY administrative data system as would typical course enrollments. These course enrollments create a baseline data source for tracking program participation and ensure that the data is uniform across the University. Registration in CUNY's administrative data systems also ensures that program participation and outcomes become part of students' transcripts once they matriculate.

CUNY Start uses a web-based application to collect and manage programmatic data. The web-based application is directly connected to CUNY's administrative data system and extracts program participation data from that official source. Data fed into the web-based application from the administrative data system include student biographical information, CUNY Start course enrollment, CUNY assessment test scores, and CUNY Start course outcomes. Additional information, such as student demographic characteristics and academic background, are collected from students via a separate intake survey and used to supplement the program data to better understand the profile of the students enrolled.

Throughout the semester, CUNY Start campus staff enter additional program participation and output data directly into the web-based application, including participants' completion and exit information and detailed course grades. The web-based application gives CUNY Start Central Office staff an ability to monitor the program centrally, and work with campus program staff to verify that program data are collected accurately so that all program reporting is accurate.

The web-based application is used primarily for collecting and storing data for the current semester. At the end of the semester, after data validation and quality control measures have been completed, the data from the web-based application are transferred to a reporting database for long-term storage. This reporting database is maintained by DMA and REPS and serves as the official source for information on CUNY Start students' personal characteristics, program participation, and program outcomes.

Performance Monitoring

CUNY Start collects both student baseline data at time of program entry and also a variety of additional data throughout the semester. Key data include information on students' demographic characteristics and academic backgrounds, initial assessed remedial education needs, and program outputs such as completion, skills area proficiency gains, matriculation into degree programs, and enrollment in CUNY's successful college completion program, Accelerated Study in Associate Programs (ASAP). CUNY Start uses these data to establish clear program benchmarks and works with colleges to fine-tune program activities so that annual targets are met. In addition, REPS generates performance reports on a scheduled basis for CUNY Start staff to review progress toward the benchmarks and make program adjustments when necessary.

Research and Evaluation

CUNY Start's commitment to instilling robust data management and program evaluation processes has played a role in the program's success. By embedding evaluation practices at the program's inception, CUNY Start has benefited from a constant source of reporting, enabling staff to make evidence-based decisions surrounding design and scale. It has also enabled the program to lay the groundwork for long-term analysis and research.

Over the course of the program's development, REPS and CUNY Start have maintained a detailed evaluation agenda that covers both large-scale studies and smaller-scale analyses. The primary evaluation objective is to measure the impact of CUNY Start on participants' academic performance and college career trajectories. Specific outcomes include students' likelihood of exiting remediation and matriculating into a degree program; measures of early academic momentum such as gateway course completion and credit accumulation; and, long-term results including college retention and graduation. REPS and CUNY Start are also focused on understanding how effects may vary for different participant subgroups (e.g., underrepresented students, adult students, and students with the deepest remedial needs).

In conducting internal evaluations, REPS employs a variety of tools to evaluate CUNY Start including descriptive analyses, surveys, focus groups, and quasi-experimental research methods. Findings from this work are typically shared with CUNY Start staff, University leadership, and industry partners via presentations and written reports. REPS also engages with the larger research community, including engaging in broader evaluation studies as well as presenting research findings at convenings and conferences.

STEPS FOR SETTING UP PROGRAM RESEARCH & EVALUATION IN CUNY START

STEP 1

What is the program's theory of action/change?

- Program goals
- Program interventions (activities)
- Realistic program benchmarks based on historical data

STEP 2

What data will be needed to evaluate/assess program goals?

- Sources of existing institutional data
- Identification of program data: enrollments, student demographics, outcomes
- What are some of the questions to be answered?

  Who are the students participating in the program?

  Does participating in the program have any impact on student performance?

  How often should the data be reported?

- Who is the intended audience for the data being analyzed?

  Different stakeholders (students, program staff, and institutional leadership) tend to have different reporting priorities.

STEP 3

What institutional capacity is there for data collection and analysis?

- Who will do data collection (or entry) at the program level?
- Who will manage the evaluation and analysis of program data?
- What is the relationship between "data" people and "program" people?
- How will data be collected?
- Where will it be stored?
- What funding is available to maintain and expand data management practices?

STEP 4

How will data and evaluation findings be used?

- What kinds of reporting will be needed by the program?
- Where will the data and findings be presented, and to whom?
- How will the data inform future program decisions?

BROADENING ACCESS AND COLLEGE COMPLETION

CUNY Start has grown significantly over the past 10 years, and now serves close to 3,000 students annually at nine CUNY campuses. In addition to enrolling more students, the program continues to improve on and adapt its model to better serve students who previously may not have been able to participate in the program, especially with regard to adult learners, multiple developmental course repeaters, and students looking to earn college credits simultaneously. Financial constraints weigh heavily into a student's decision to enroll in the program. Many students who decide not to enroll in CUNY Start cite a reluctance to commit to the time obligations of being in the program because of the need to work, or indicate an unwillingness to defer matriculation. Since students must defer matriculation for a semester while enrolled in CUNY Start, for those who rely on financial aid to cover more than just tuition expenses, matriculation is the only way to afford attending college. Other students feel that as a college student, they must earn some college credit and would rather take their chances enrolling in traditional remedial classes alongside credit-bearing courses. The following two examples highlight the ongoing adaptations of the program to continue to meet the changing needs of CUNY students.

Math Start

Math Start was launched in 2014 to provide students with deep remedial math needs an opportunity to enroll in a CUNY Start program where they could focus on just math. Math Start, which enrolls an additional 1,200 students a year, was designed as an accelerated 8-10 week intervention that is based on CUNY Start's math curriculum and pedagogy and offers the same student supports. Students attend class approximately 20 hours per week (instead of the 25 hours per week for the full CUNY Start program), and classes are offered in the summer and "off-cycle" during the fall and spring

semesters. The program costs students only $35 to participate and provides them with free MetroCards. The program is especially appealing to students who prefer an accelerated schedule and/or like the option of enrolling in the summer. Additional iterations of the Math Start model include offering the course as an option for students who may have not been successful in passing a traditional math remedial course or as a bridge course for students looking to matriculate to a college but who may have missed the start of the semester. Schedule variations are also being tested to accommodate students who are only able to be on campus for limited times during a given semester. In this instance, students attend class approximately 9-10 hours per week (2.5 $-$ 3 hours a day/3 days a week) for up to 18 weeks.
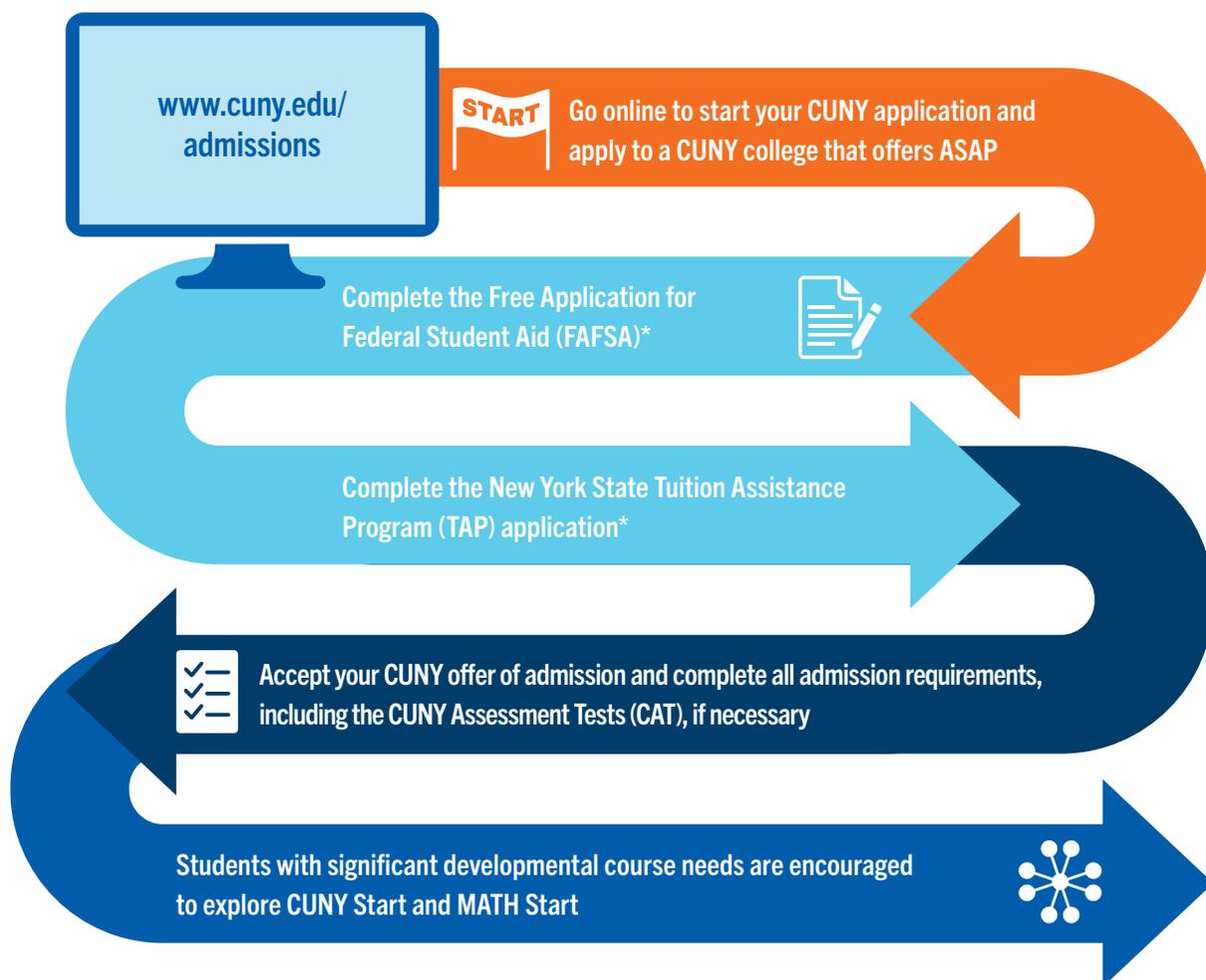
Connecting to CUNY Success Programs

In order to provide students with the best chance for success after completing CUNY Start and matriculating at the University, CUNY Start began partnering with CUNY's Accelerated Study in Associate Programs (ASAP) in 2014. ASAP is a nationally recognized college completion initiative that helps matriculated students earn associate degrees within three years by providing a structured degree pathway and wraparound supports such as MetroCards, tuition waivers, textbook vouchers, and dedicated advisement.[24] As of spring 2017, the two programs have a formal partnership agreement that designates CUNY Start as an official pathway into ASAP, and specifies a goal of enrolling at least 50 percent of CUNY Start students who complete the program and meet ASAP's eligibility requirements. The programs share the goal of demonstrating that, with the appropriate supports and structures, students assessed with significant remedial education needs can achieve their educational goals and graduate in a timely manner.

Starting in Fall 2019, CUNY began experimenting with blending elements of CUNY Start and ASAP, enabling students who are assessed with deep remedial math needs but English-proficient to enroll in a Math Start class while also enrolling in specially selected General Education college credit courses. The model is structured as a learning community and students are enrolled in all their courses as a cohort. Currently marketed as a 'jumpstart' into ASAP, students are provided with all

the benefits and wraparound services ASAP provides, which includes being supported by a dedicated advisor, and financial supports including a tuition waiver, MetroCard and textbook stipend. This hybrid program broadens access to Math Start for students who are not able to enroll in ASAP or are not interested in deferring matriculation.

www.cuny.edu/admissions

START Go online to start your CUNY application and apply to a CUNY college that offers ASAP

Complete the Free Application for Federal Student Aid (FAFSA)*

Complete the New York State Tuition Assistance Program (TAP) application*

Accept your CUNY offer of admission and complete all admission requirements, including the CUNY Assessment Tests (CAT), if necessary

Students with significant developmental course needs are encouraged to explore CUNY Start and MATH Start

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[24] See http://www1.cuny.edu/sites/asap for more details on the CUNY ASAP program.

* To join ASAP, students must complete the Free Application for Federal Student Aid (FAFSA) at www.fafsa.ed.gov and the New York State Tuition Assistance Program (TAP) application at www.hesc.ny.gov, and accept any federal and state grant aid awarded (Pell, SEOG, TAP).

CONCLUSION

CUNY Start has proven to be a successful model that helps students with assessed deep remedial needs gain proficiency. The program leverages deferred matriculation to allow students to address their academic needs without wasting time, money, or valuable financial aid dollars. The program's theory of change is built on the belief that investing time upfront will allow students to focus on credit accumulation and progress towards their degrees once they matriculate. As a result, students will be more likely to graduate in a timely manner.

This resource guide was developed to provide an overview of the CUNY Start model for college administrators, faculty, and other key stakeholders who may be interested in instituting a CUNY Start-like program at their colleges. When thinking about the launch of such a program, it is important to note all of the components that contribute to the goal of improving student access and completion, and that the program's success does not seem to be attributed to any individual factor, but on how all of the program components are implemented in concert with each other. The success of CUNY Start and its students depend on the strong support of University and college leadership, a commitment to ongoing professional development and growth, and strategic coordination among multiple college and University offices and departments working in unison towards a common goal.

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