ACADEMIC MASTER PLAN

of

Bronx Community College of the City University of New York

2018-2023

Submitted 10/2018 by:

Alexander Ott, Ed.D., Associate Dean, Curriculum Matters and Academic Programs

ACKNOWLEDGEMENTS

MESSAGE FROM THE PRESIDENT

To the BCC Community:

I am truly grateful to all who have engaged in this Academic Master Plan (AMP) effort over the past year. Under the guidance of the faculty, staff, and student representatives on the AMP Committee, this effort has reached across the college, seeking wisdom and input from varied stakeholders.

The AMP effort undertook a detailed analysis of the state of our existing academic programs in the context of enrollment, graduation, and transfer, as well as program alignment with labor market and educational trends. The AMP effort also looked for opportunities for promising new academic initiatives. The resulting Academic Master Plan provides findings and recommendations that will inform our institutional direction and decision-making for the next five years. The AMP will help us remain current in our academic programs—in the language of our Strategic Plan, to "Cultivate a 21st Century Curriculum." It will help us provide the very best opportunities for our students to study in fields that will lead to quality employment and preparation for additional educational achievement.

The creation of an Academic Master Plan is only a first step. As is clear from the final chapter of the AMP, there are many "next steps"—the AMP is not complete on the page. It is an action document that will not only inform academic decisions and initiatives, but also plans in other areas of the college.

I look forward to conversations with members of our community who will play key roles in addressing the AMP findings and recommendations. I thank you, in advance, for your help in taking essential next steps.

Sincerely,

Thomas A. Isekenegbe, Ph.D.
President
Bronx Community College

EXECUTIVE SUMMARY

For the past year, BCC has been engaged in an Academic Master Plan (AMP) effort intended to identify areas of opportunity, strengths unique to the institution, and areas of improvement. BCC's AMP effort focused, in particular, on reviewing current and future academic programs and, to a lesser degree, academic structures within the context of educational and labor market trends. The decision to develop an AMP grew from the BCC Strategic Plan, which called for cultivating a 21st Century Curriculum and for reviewing, evaluating, updating, and developing curricula that maintain currency and are congruent with BCC's mission. This resulting BCC Academic Master Plan is an expression of institutional academic priorities, will help guide academic decision-making for the next five years, and will inform the development of other plans, such as those in facilities, enrollment, and information technology.

The Process and Research Design

The AMP Committee was formed in late Fall 2017 with representatives from each academic department as well as administrators and the 2018 student valedictorian. The AMP Committee met monthly through the Spring 2018 semester as well as once in the Fall 2018 semester. Throughout the process, every effort was made to distribute AMP information widely and seek input from key stakeholders, including academic department chairs (some of whom were on the AMP Committee directly), administrators, and students. Regular AMP updates occurred to the Vice Presidents, Deans, and Chairs monthly meeting, as well as to the Curriculum Committee, Senate, and to the full College community via email Broadcast. The input from key stakeholders has proved very valuable and have made this document far better as a result.

Much of the AMP work was done through AMP Subcommittees, which were organized around the five discrete but interrelated components of the research effort:

- AMP Component #1: Labor Market/Business Trends
- AMP Component #2: Educational Trends
- AMP Component #3: Academic Program Review
- AMP Component #4: Academic Structures and Resources
- AMP Component #5: Conclusions and Recommendations

The first two components/subcommittees focused heavily on our academic programs and how they align to the labor market and CUNY educational trends. The third component/subcommittee analyzed enrollment, graduation, and transfer data relating to each BCC program. The fourth component/subcommittee compared our academic structures to peer CUNY colleges. The final component was a summation of all the previous analysis, as well as recommendations for the College. This last component did not have a subcommittee associated with it, but the conclusions and recommendations were reviewed and revised by the full AMP Committee and other stakeholders.

Labor Market Trends/BCC Program Alignment

The main research tool developed by AMP Subcommittee #1 was the BCC Jobs Scorecard, in which each BCC program was aligned with at least one but a maximum of three job titles. Job titles were determined via labor market analysis and in consultation with AMP Committee members and department chairs. The data for the Jobs Scorecard was gathered from two sources: Burning Glass-Labor Insight™ and the New York State Department of Labor, with the former being particularly important.

Burning Glass is a subscription-based service that aggregates and analyzes labor market data based on multiple sources (e.g., job vacancy postings), allowing the user to run queries based on job titles, qualifications, etc. in a geographic area (e.g., New York City).

Two key findings and recommendations arose primarily from this labor market analysis and alignment with existing degree programs: (1) the New York City labor market shows a strong preference for bachelor degrees in many fields and (2) the alignment of some BCC computer-related degree programs to high-demand job titles is not completely clear. In regard to the former, this finding leads to the recommendation that departments review AAS degree programs to assure that transfer paths are well-established and that our marketing/messaging to students about the career opportunities with the AAS degrees are accurate. In some cases, departments should review whether certain AAS programs would be better designed as AS degrees. In regard to the latter finding, enrollment in many computer-related programs at BCC and across CUNY is robust, as is demand for qualified workers in related job titles. As the field is rapidly evolving and changing, however, it is essential to review BCC programs to ensure that the programs are aligned with the field in terms of credentials, requirements, skills, and nomenclature.

The AMP 1 Subcommittee also performed a "gap" analysis of the labor market, looking for job titles with decent wages/opportunities for advancement in which there is significant demand for applicants with an associate degree. There were two such job titles that seem especially promising for BCC: (1) Human Resource Assistant and (2) Customer Service Representative. The recommendation for these findings is to form a committee of interested parties to review opportunities to prepare students for these job titles. This may be done in many ways, including but not limited to the following: development of a course or option within an existing degree program, a certification/noncredit credential, a full new degree program.

BCC Associate Degree, Liberal Arts Option, and Certificate Program Analysis
AMP Subcommittee #3 engaged in a robust review of BCC associate degree programs using quantitative metrics relating to enrollment, graduation, and transfer. The main categories of analysis were as follows: enrollment overview, low total enrollment/total graduates, enrollment trends, graduate rates, transfer analysis, and median time to graduation. For many of these categories, the focus was BCC programs that seemed to be outliers in comparison with other programs. The programs with "outlying" data were "flagged" as either green (to indicate a high score on the variable, generally a positive) or yellow (to indicate a low score on the variable, which may raise a warning flag that there may be a cause for concern). The logic of this approach was that if a program garners a number of yellow flags across multiple variables (or on a particularly importation variable), it is likely justification for a recommendation of further review. The main resource tool developed by AMP Subcommittee #3 is the AMP Academic Program Review Summary.

Note that not all variables (and related "flags") are of equal significance. It was clear that one variable is very important: *Five-Year Total Graduates*. This one simple variable tells us how many students each program has graduated from BCC in the past five academic years. If a program has graduated very few students in the past ten years (e.g., fewer than 10), it is reasonable to ask whether the program, in current form, is viable.

The analysis completed for associate degree programs was used as the model for the analysis of BCC AA and AS Liberal Arts and Sciences (LAS) Options as well as Certificate programs. Analysis of the LAS options was important because these options often have significant enrollment and students sometimes think of them as full majors instead of only as options. The analysis also integrated elements of data from AMP subcommittee #1 and #2 in terms of the labor market context and peer CUNY programs, as well as, to a limited degree, AMP #4 in terms of peer CUNY college departmental structures.

Multiple findings and recommendations resulted from the program, LAS option, and certificate analysis, including the following:
1. programs with enrollment concerns/opportunities,
2. stackable credentials opportunities, and
3. new or restructured degree development opportunities.
For a detailed discussion of each of these areas, please see the full report and the final chapter, in particular. In this executive summary, we'll provide some of the highlights only.

First, the AMP analysis identified three categories of programs with enrollment concerns: (A) those with low enrollment/graduation over the past five years, (B) those with a significant decline over the past five years (-25% or more), and (C) those with no enrollment at all (inactive programs). Programs falling in any of these categories should be reviewed carefully by the department offering them. For programs in category A, it is recommended that the departments review them carefully in consultation with the Office of Academic Affairs (OAA) and consider major modifications. For programs in category B, departments are asked to review with an eye toward modifications that would be expected to stabilize or reverse the enrollment decline. For the inactive programs in category C, the departments should determine whether the program could be redesigned and offered for enrollment. If not, these departments should work with OAA to deregister these programs officially through the governance process.

Second, the AMP effort identified opportunities in the area of stackable credentials. Note that BCC has made progress in this area recently, including the creation of a degree program and certificate in Cybersecurity and Networking that incorporates IT certifications as essential stackable credential elements. There are untapped additional opportunities in stackable credentials, however, as the AMP effort has made clear, particularly in two categories: (A) certificate programs and (B) industry certifications. In terms of category A, BCC and CUNY in general are remarkably under-enrolled in credit-bearing certificates in comparison with community colleges nationwide. More research is appropriate via a committee of interested parties to review opportunities to develop certificate programs aligned to local employer needs. In terms of category B, it is recommended that OAA work closely with colleagues in Workforce and Economic Development and appropriate academic departments to identify possible additional promising credentials.

Third, the AMP analysis identified new or restructured degree development opportunities. The most clear case of a new degree program to consider developing is an AS in Health Science. This degree program can help manage the large numbers of students who intend to pursue an associate degree in Nursing and other high-demand allied health programs: Pre-clinical Nursing intent students can be admitted into this program instead of the Nursing major, thus not giving students unrealistic hopes

about their likely future admission into the Nursing clinical program. At the same time, this program creates a clear path to allied health programs by accommodating the pre-clinical courses required for admission to Nursing, Radiologic Technology, etc. For those students who do not meet clinical admission requirements for Nursing, Radiologic Technology, etc., an AS in Health Science can educate students about their many options in the health field both at the associate and baccalaureate levels, give students the opportunity to earn an associate degree related to their field of interest, and prepare them for a baccalaureate degree in a health field. A new degree program is a major undertaking, and this one would be more complex than most, given that it spans at least three departments that would have a role in this degree. Coordination among OAA and the departments of Nursing and Allied Health Sciences; Biological Sciences; and Health, Physical Education and Recreation is essential to ensure this degree is developed well.

Multiple options for existing degree restructuring arose through review of BCC data and peer community college program data. Several BCC Liberal Arts and Sciences Options (e.g., Biology, Psychology, and Childhood & Early Childhood Education) show sufficient enrollment to possibly justify a "stand-alone" degree program. Such programs are more attractive to students, are easier to market, and allow for more departmental ownership. Departments, in consultation with OAA, to consider proposing degree programs to replace existing Liberal Arts and Sciences options in the above areas.

Finally, research into how peer CUNY community colleges offer science curricula led to a recommendation for a review of the AS in Liberal Arts and Sciences program by STEM departments, both in terms of the name of the degree and the structure. In terms of the name, one option would be to change the degree from an AS in Liberal Arts and Sciences to simply an AS in Science. Such a change in name would (1) likely make the degree more attractive to students, (2) reduce confusion with the AA in Liberal Arts and Sciences, and (3) more accurately describe the program's content: it is a science degree with a strong math foundation. In terms of structure, the STEM Departments are encouraged to consider the formation of a "General" option in the degree, analogous to the General option in the AA LAS program. This option could afford students more flexibility in science course choice in the context of future career and educational plans.

CUNY Peers: Academic Department Comparison
To say that no two CUNY community colleges are alike is certainly true in regard to the number and names of academic departments. While there are some common elements, every college has a different approach to this organizational structure in terms of department names, number, and what programs are associated with which department. This diversity likely reflects each college's unique history, organizational culture, and traditions.

In addition to the finding of great diversity in CUNY community college departmental organization, there was one other finding of note: While BCC's number of academic departments (14) is approximately in the middle of the pack in comparison to peers, it has a relatively large number of academic departments in relation to its overall enrollment. That is, when you hold enrollment constant, BCC has a relative large number of academic departments compared with CUNY peers. While it is not clear whether it is preferable to have a large number of departments relative to enrollment, departmental structures are not resource neutral, so any consideration of adding another department would need careful financial

analysis. Overall, the analysis of peer college departmental structures in relation to BCC's did not result in any actionable findings.

Next Steps: AMP Implementation
An AMP Implementation Committee should be formed, which will, in consultation with appropriate chairs, administrators, and CUNY Central OAA (when relevant), develop an action plan with a timeline based on AMP findings and recommendations. Note that certain items (e.g., BCC Programs with Enrollment Concerns/Opportunities) call for immediate review and action. Other items (e.g., New or Restructured Degree Development Opportunities) call for more research and consultation before determining what, if any, action is appropriate. The action plan would detail the next steps and timeline.

This AMP Implementation Committee would also oversee and monitor the progress toward addressing AMP findings and recommendations. The AMP effort created a data structure and analysis that can be updated annually to track progress (and inform possible necessary changes in direction). Additional data could be incorporated into this effort (e.g., reporting on careers/employment of BCC graduates by program). Using these data and other metrics, the AMP Implementation Committee will ensure that the action plan is on track.

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Introduction to Academic Master Plans

An academic master plan (AMP) represents an institution's academic priorities and helps guide academic decision-making for a period of five to ten years. The plan is intended to identify areas of opportunity, strengths unique to the institution, and areas of improvement. There is no "one" approach to an academic master plan—either in terms of methodology or scope. A review of peer community college AMPs finds each college taking a different approach, from an academic department-based approach (Rockland Community College), to a full institutional review (Austin Community College District). BCC's AMP effort had a very specific focus: reviewing current and future academic programs and, to a lesser degree, academic structures, in the context of educational and labor market trends.

Why BCC's AMP Focuses on Academic Programs

Academic programs—and students graduating from them—is at the heart of what we do. When students participate in commencement exercises every June, they receive a diploma specific to an academic program. The program from which they graduate often defines their next educational or professional decision—perhaps their life path. BCC's mission and vision statements speak to the responsibility of the institution to provide the academic preparation needed for students to succeed after they leave BCC. As such, it is incumbent upon the institution to periodically review its academic program offerings to ensure that they align well with educational and labor market trends, that they are vibrant in that they enroll and graduate a reasonable number of students, and that there are no high-value program opportunities that we could be offering our students but presently are not.

BCC's Strategic Plan recognizes the centrality of curricular currency by listing as one of its goals to, "Cultivate a 21st Century Curriculum," with an associated goal to, "Review, evaluate, update and develop programs to maintain currency and congruence with the College's mission." The focus of the BCC AMP effort directly addresses these goals and objectives of the Strategic Plan.

AMP as the Foundation for Other Campus Planning

An Academic Master Plan typically informs other campus planning. An AMP makes recommendations as to the academic direction the institution might go in the next five years. Using the AMP findings, institutional leaders—including executive administration, department chairs, and faculty—can better make data-based short- and medium-term academic decisions. These decisions could be, for example, to revise and reboot a struggling academic program or develop a new academic program. The AMP and the resulting academic decisions then inform the plans for facilities improvement, enrollment strategic planning, information technology upgrades, etc. The AMP could also serve as the foundation for a new Campus Master Plan, which is an overall master plan focused on facilities and infrastructure.

Limitations: A Final Note on BCC AMP Scope

As is clear by now, the BCC AMP effort was not a comprehensive review of all facets of BCC's academic structures, course offerings, and priorities. Instead it was a focus on academic programs and, to a more limited degree, on academic structures (e.g., academic departments). This decision was, as demonstrated already, an intentional one. Of course, a more comprehensive academic review that focused on course offerings, instructional loads, class sizes, scheduling and more would be valuable and could be pursued in the future. We could call that AMP 2.0.

CHAPTER II

PROCESS, MODEL, RESEARCH QUESTIONS

The AMP Process

The decision to develop an AMP grew from the BCC Strategic Plan, which called for, as previously noted, cultivating a 21st Century Curriculum and for reviewing, evaluating, updating, and developing curricula to maintain currency and congruence with BCC's mission. The organizational "home" for developing the AMP was the Office of Academic Affairs, with the lead coordinator being the Associate Dean for Curriculum Matters and Academic Programs. The groundwork for the AMP effort was laid in academic year 2016-2017 and early Fall 2017, with multiple announcements of the effort from the Provost to the College community, including at Faculty and Staff Convocation. The effort got underway in earnest in November 2017, with the charge from the Provost at the monthly Vice Presidents, Deans, and Chairs (VPDC) meeting. The formation of the AMP Committee followed shortly, as did monthly meetings of the AMP committee and various subcommittees through the end of the Spring 2018 semester. Summer 2018 saw continued participation by staff and some volunteer AMP Committee faculty dedicated to addressing one or more research questions. The AMP was finalized in Fall 2018, including an informational presentation of the AMP at Curriculum Committee and College Senate. See timeline in Appendix A.

A successful AMP effort should include meaningful input from all stakeholders. Every effort was made to seek this input, from the composition of the AMP Committee to the communication the College community. The AMP Committee included faculty representatives from each academic department, the valedictorian of the college, and administrators from Academic Affairs, Institutional Research and Assessment, Workforce and Economic Development, and Campus Planning. All academic chairs, regardless of whether they were on the AMP Committee were keep apprised of AMP developments on at least a monthly basis during the school year: Each VPDC meeting included an update on the AMP, multiple email updates and minutes from meetings were distributed as well. The BCC Curriculum Committee was updated on a regular basis, as was the BCC College Senate and the college community as a whole. Please see samples of AMP updates to stakeholders for some of these written communications.

In addition to the inclusion of a student on the AMP Committee and frequent updates to the full college community, the AMP Committee also sought input via a survey sent to all Spring 2018 enrolled BCC students. Details about this survey, outcomes, and analysis can be found here. While this survey did not yield much about success factors within academic programs it did result in other interesting points, including an emphasis on the importance and value of academic support resources such as the Library and tutoring.

The AMP Research Design

To structure the effort on an intellectual and conceptual basis, the AMP Committee developed a five-component model to develop the Academic Master Plan. See Figure 1.

Figure 1
Academic Master Plan Design
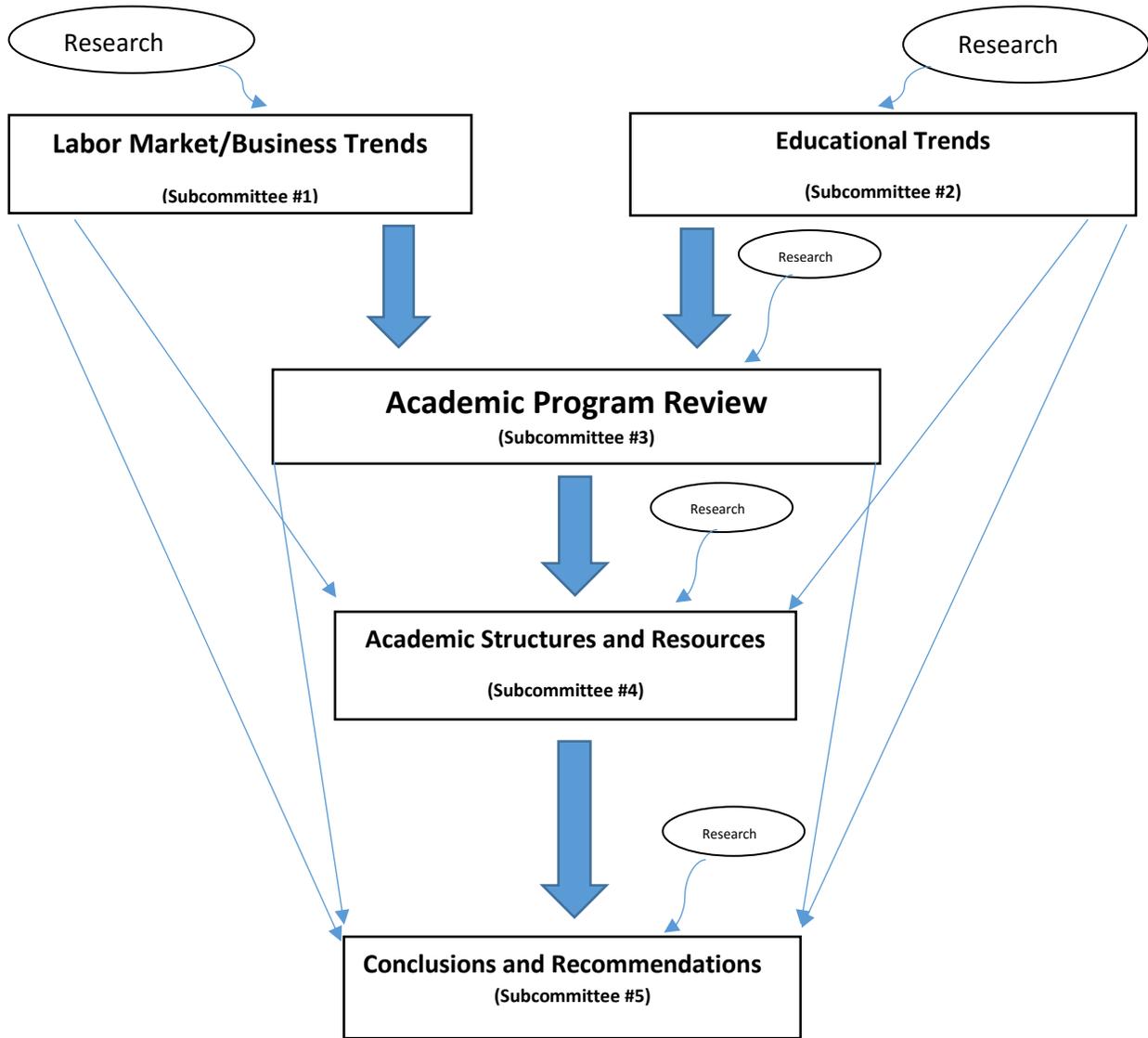
As indicated in Figure 1, the AMP process involved five discrete but interrelated components. Approaching AMP development in this way allowed us to organize subcommittees to research each component and report back to the main AMP Committee.

AMP Components and Research Questions

The five AMP components with key research questions and/or prompts can be summarized as follows:

- **AMP Component #1: Labor Market/Business Trends**
  What are major labor market/business trends in the metro area that should inform our academic program offerings?
- **AMP Component #2: Educational Trends**
  What are the major educational trends at BCC, in CUNY, and elsewhere that should inform our academic program offerings?
- **AMP Component #3: Academic Program Review**
  Evaluate our current academic program offerings using key indicators of viability (e.g., enrollment, graduation, graduation outcomes, transfer, cost, etc.) and in the context of the findings from research questions #1 and #2.
- **AMP Component #4: Academic Structures and Resources**
  In the context of research questions 1, 2, and 3, how well do our current academic structures (e.g., departments, policies, practices, etc.) and resources (e.g., personnel, physical space, equipment, etc.) serve to support and grow our current academic programs and the development of new academic programs?
- **AMP Component #5: Conclusions and Recommendations**
  Conclusions: Provide recommendations for academic programs, academic structure, and resources consistent with commitment to institutional mission.

Each subcommittee received a "roadmap" document that offered additional questions, elements to consider, and resources. See Appendix B for copies of these roadmaps. Note that each committee had the freedom to deviate from the roadmap on the basis of judgment, resources, time constraints, etc. The following "Analysis" chapters detail some of the data and analysis coming from the first four components of the AMP. The fifth component—conclusions and recommendations—is represented in the final chapter of this document.

Please note the following caveat: In some cases, research that was done in a committee was not included in the final AMP document, largely because the final AMP document focuses on academic programs and structures, primarily in a quantitative context. This is most apparent regarding the research in AMP subcommittee #2 that investigated supplemental academic programs as educational trends, such as honors programs, first year seminar, and learning communities. This research could be a foundation for or a component of another "AMP" effort, as noted in the final chapter.

CHAPTER III

ANALYSIS: LABOR MARKET TRENDS/BCC PROGRAM ALIGNMENT

Introduction

A college education cannot and should not be reduced to workforce preparation. A college education should broaden perspectives, develop critical thinking, and inspire students to become lifelong learners. These intellectual changes, in addition to many others that result from a high-quality, rigorous college education, enrich students' lives and, it should be noted, are highly sought by employers (see, for example, research from AAC&U's Liberal Education and America's Promise initiative). That said, students often attend college with specific career goals in mind. Academic programs often make claims, either explicit or implicit, to prepare students for specific careers. Therefore, it is incumbent on an institution to periodically review how well-aligned its academic programs are to careers, whether these careers are flourishing and growing, and whether there are careers that we could be preparing our students for but are not. Colleges are, ideally, engines of social mobility; the better aligned BCC's programs are to New York City economic conditions, the better our college will help our students realize their professional goals.

Reviewing Existing Degree Programs

AMP Subcommittee #1 began this effort by reviewing more than 60 BCC associate programs, associate program options, and certificate programs to determine several likely job titles for which graduates would be qualified. (One large program was excluded from the jobs analysis; more on this shortly.) This process, in addition to reviewing the college catalog, web site, and other publically accessible material, also engaged the AMP Committee members from the relevant academic department, the program coordinator, and the department chair. This iterative process resulted in up to three job titles aligning to each academic program—including options. (We limited the job titles to three for each program/option in order to make the research more manageable than if we were to allow, say, five or ten. As one could imagine, given that BCC has more than 60 distinct programs and options, even researching three job titles for each was a major undertaking.)

For each academic program and liberal arts option, up to three job titles were researched. Please see the resulting BCC Jobs Scorecard. The data for the Jobs Scorecard was gathered from two sources: Burning Glass-Labor Insight™ and the New York State Department of Labor. Burning Glass was an exceptionally important resource for this research. It is a subscription-based service that aggregates and analyzes labor market data based on multiple sources (e.g., job vacancy postings), allowing the user to run queries based on job titles, qualifications, etc. in a geographic area (e.g., New York City). Note that unless otherwise indicated, data reported in the following analysis from Burning Glass reflects job postings over a one year period (typically July 2017-July 2018) in the five boroughs.

The data in the Jobs Scorecard for each job title helps us answer the following questions about our programs:

1. Are programs qualifying students to achieve the job outcomes they (either implicitly or explicitly) promise?
2. Are the jobs that programs prepare students for in high demand and in growing sectors?
3. Are programs preparing students for jobs with decent/livable wages?

Before discussing key findings from the research, it is important to qualify this analysis: To a considerable degree, the job analysis is more effective for certificates and AAS "career" programs than it is for AA and AS "transfer" programs. The former programs are typically designed to prepare a student for a career on the basis of the certificate or associate credential. For example, a student graduating with an AAS in Radiologic Technology is prepared to sit for licensure in that field and be employed in that same role on that basis with no further formal college education. In contrast, when a student completes an AA in English, their immediate job prospects on the basis of the AA are much less clear. Such a student would typically need to go on to a bachelor's degree or more in order to qualify for a specific profession (e.g., teaching, law, etc.). It is also less clear for some AA and AS programs exactly which field a student might pursue. These shortcomings notwithstanding, we decided to include almost all BCC programs and options because we presume that nearly all of our students will eventually want to use their academic credentials for purpose of employment. The only program we excluded was the AA in Liberal Arts and Sciences General Option; we made this decision simply because the possible educational and career paths a student could pursue after this degree are so diverse that focusing on three job titles would be highly problematic.

The following are findings based on analysis of the data on the BCC [Jobs Scorecard](#):

1. In reviewing the BCC Jobs Scorecard, particularly the categories relating to educational qualifications sought in job postings, one broad conclusion is quite clear: The current NYC labor market in many job titles aligned with BCC degrees is showing a strong preference for a bachelor's degree instead of an associate degree. We see this even in job titles associated with some AAS programs:
    a. The job titles aligning to the AAS Digital Arts (e.g., Graphic Designer, Web Developer), seem to heavily preference bachelor degree holders. For example, for Graphic Designer, 1446 of the 2866 job postings were looking for a BA or above. In contrast, only 77 of the job postings were seeking either an AS or lower (2.6%). There are a large number of postings that don't specify educational qualification (1343). It is possible that some of the 1343 postings that didn't specify a minimum educational qualification would consider a student with an associate degree, but that's impossible to say with any confidence. While more analysis is appropriate (e.g., feedback from BCC graduates in terms of employment and what percentage went on for a bachelor's), these data clearly point to a possible issue of credential level alignment with the field.
    b. The job titles aligning to the AAS Marketing Management degree showed a similarly heavy preference for a bachelor's degree. For the "Marketing Assistant/Associate" job title, out of 755 jobs posted, only 18 were asking for an associate (or lower) in terms of minimum educational credential (2.3%). In contrast, 356 were looking for a bachelor's or higher. For this job title as well, a significant number did not indicate a minimum

educational credential (381), and it's not possible to tell whether these positions would be open to an associate degree holder. For this degree, similar to the AAS Digital Arts, a deeper look would be valuable.

(Note that in some fields, particularly in the health professions, the associate degree is a very marketable degree for a job in the field. For example, for Radiologic Technologist, 169 of the 477 job vacancies indicated an associate was sufficient for employment (35.4%).)

2. Job postings relating to web page development and design (Web Developer and Web Designer) are significant in number, and anticipated to grow robustly through 2024. They also pay well, with entry-level salaries higher than $50,000 per year, and median salaries of more than $80,000. BCC has two programs with some connection to these fields: the AAS in Digital Art: Web Design and AAS in Computer Information Systems: Web Page Development. These are two very different approaches to the field (one from an art perspective and one from a business/CIS orientation) that may or may not align well with the job titles. More research would be appropriate to ensure alignment is strong. Additionally, both job titles very strongly preference a bachelor's degree, so having a strong transfer option from the AAS program into an appropriate four-year degree program would be essential.

3. Job postings in the Software Developer job title are also significant in number and anticipated to grow robustly through 2024. Software Developer positions pay even better than Web Designer and Web Developer positions. One BCC program clearly relates to the Software Developer title: the AS in Computer Science, and seems to align well, particularly once a student has earned a bachelor's degree. Note that a more entry-level position of Computer Programmer is expected to grow less robustly, though it does also pay well. The Computer Programmer title also aligns to the AS in Computer Science and, to a seemingly lesser degree, the AAS in Computer Information Systems: Computer Programming Option. These two programs take a very different approach to the field, with the former from a traditional math/computer science orientation and the latter from a business/CIS orientation. While it's clear that the AS in Computer Science aligns well to the Computer Programmer title (particularly once students earn a bachelor's degree in computer science), this is less clear for the CIS: Computer Programming option.

4. Several job titles are predicted to have very low job growth through 2024. In some cases, such as when a degree leads to several possible appropriate job titles, low growth in one job title is less significant. However, one BCC program (AAS Nuclear Medicine Technology) relates to one job title exclusively (Nuclear Medicine Technologist) and this job title is predicted to have very low growth through 2024 (1.7%). Additional research and discussion has already begun to analyze ways to broaden the employment options for program graduates, including possible additional certifications (e.g., CT scan).

Reviewing Labor Market Trends for Gaps in BCC Program Offerings

The preceding analysis began with the existing BCC programs and options and aligned them with job titles. This second stage of analysis uses a different lens. It begins by analyzing the labor market job titles that are promising in multiple ways (wages, size of industry, expected job growth) and widely accept the associate degree as a qualifying credential. It focuses on those job titles for which we do not currently have an aligned degree program, but which might be a good "fit" for BCC and our students.

The methodology for this analysis was as follows:

The **NYS Department of Labor's Significant Industries Report** for New York City (2015) designated 13 industries "on the basis of job counts, wage levels, job growth (both net and percent) over the 2009-2014 period, and expected job growth based on industry employment projections through 2022." For each significant industry, the report provides a list of the ten most common occupations and their corresponding growth projections and median occupational wages within that industry. We focused on jobs with median salaries above $35,000 annually, as well as those with lower median salaries that were on a mobile career ladder leading to higher salaries. (For detailed information on this step, see source data at AMP Source Data Potential Growth Areas for BCC).

For each of the top ten occupations within a DOL Significant Industry, we ran a Burning Glass labor insight report to identify the number of job openings within the last twelve months and the minimum educational credential requested in those job postings. This allowed us to identify jobs for which an education less than a bachelor's degree would be inadequate, and, therefore, eliminate these from our analysis.

We also ran a Burning Glass "regional scan" report for the five boroughs of New York City to identify occupations in demand for individuals with an associate degree. This was based on the number of job postings specifically requesting a minimum education of an associate degree within the last twelve months (see Regional Scan Report for Occupations in Demand).

To further qualify occupations identified in the Burning Glass "regional scan" and to identify other potential areas for development, we utilized the NYS DOL's report on Long-Term Occupational Employment Projections, 2014-2024. This report contains employment projections and wage data for all occupations and classifies employment prospects for each occupation, based on a number of factors, as either "very favorable," "favorable," "unfavorable," or "very unfavorable." All occupational data listed in the following tables in this section come from the Long-Term Occupational Employment Projections report.

On the basis of the preceding analysis, two job titles showed strong potential for BCC to develop an educational pathway that would qualify students for these fields: Human Resources Assistant and Customer Services Representative. Each of these titles showed strong demand for associate degree holders, in addition to decent salaries.

Human Resource Assistant
According to the Burning Glass regional scan for jobs specifically requesting applicants with associate degrees, "Human Resource Specialist" is the sixth most in-demand job, with nearly 500 job openings for individuals with an associate degree posted in the last year. The Department of Labor says that typical education for "Human Resource Specialist" is a bachelor's degree but for "Human Resource Assistant" is an associate degree. See Table 1 for employment and salary data for each title. The outlook for Human Resource Assistants, according to DOL, is "favorable."

Table 1

Human Resource Specialists and Assistants: Employment and Salary Data

Human Resource Specialists (13-1071)

Employment		Change		Annual Average Openings			Annual Wages ($) - 2017		
2014	2024	Net	Percent	Total	Growth	Replacement	Mean	Median	Entry
17,630	19,990	2,360	13.4%	670	240	430	$82,860	$75,500	$49,640

Human Resource Assistants (43-4161)

Employment		Change		Annual Average Openings			Annual Wages ($) - 2017		
2014	2024	Net	Percent	Total	Growth	Replacement	Mean	Median	Entry
4,040	4,340	300	7.4%	80	30	50	$45,250	$44,480	$31,160

Source: Long-Term Occupational Employment Projections, 2014-2024; New York State Department of Labor.

A review of peer CUNY colleges indicated that none offers an associate degree in human resources. More research is needed to determine if any colleges offer options in human resources within a broader degree and how robust this enrollment is. Brooklyn College and Baruch both offer BBA degrees with concentrations in human resource management.

Customer Service Representative
Job posting for Customer Service Representative were the fourth-most "in-demand" job for individuals with associate degrees, according to the Burning Glass regional scan. NYS DOL projects employment in the field as "very favorable." The title shows up in three of the DOL's "Significant Industries," with decent median wages in each:
- $37,258 in the Nonstore Retailers industry (NAICS 454)
- $51,163 in the Other Information Services industry (NAICS 519)
- $34,992 in the Administrative and Support Services industry (NAICS 561)

Additionally, NYS DOL data show significant employment in this field in the five boroughs (61,940 as of 2014), and 13.4% growth through 2024. Job openings, a combination of new jobs and replacement hires, are well over 2000 annually. See Table 2 for this and more data.

Table 2

Customer Service Representatives: Employment and Salary Data

Customer Service Representatives (43-4051)

Employment		Change		Annual Average Openings			Annual Wages ($) - 2017		
2014	2024	Net	Percent	Total	Growth	Replacement	Mean	Median	Entry
61,940	70,260	8,320	13.4%	2,360	830	1,530	$43,490	$39,760	$26,050

Source: Long-Term Occupational Employment Projections, 2014-2024; New York State Department of Labor.

Given the diversity of languages spoken at BCC and in the Bronx generally, one "niche" area to explore might be training for bilingual customer service representatives. Though the DOL does not provide data specific to "bilingual" customer service representatives, Burning Glass search filters allow us to see how many such jobs are in demand. We searched for "Customer Service Representative" job postings in the

five boroughs, last twelve months, for individuals with less than a bachelor's degree, using two language skill filters. The findings were impressive: Bilingual – 1,418 postings, Spanish – 705 postings.

An open question, and one requiring more research, would be how to tailor an educational path to this job title. There are no associate programs in CUNY that focus on preparing students for this job title. Initial research indicates that degrees in "customer service" are rare in general. Perhaps a full degree is not the appropriate way to address, but there may be an approach short of this (e.g., certification, a specific course within another degree), that would give our students an advantage in applying for jobs in this field. As already noted, additional research and discussion on this issue is essential.

Macro Review of Labor Market Trends in New York City

No review of the labor market would be complete without an overview of local labor market trends presented independent of BCC degree programs. See the following table for an overview of the 25 job titles with the largest projected annual average openings in New York City through 2024.

Table 3
New York City Top 25 Job Titles by Annual Average Openings, 2014-2024

Job Title	Median Wage	Annual Average Openings
Home Health Aides	$23,720	8,040
Retail Salespersons	$21,840	5,980
Waiters and Waitresses	$28,640	4,440
Cashiers	$21,840	3,770
Combined Food Preparation and Serving Workers, Including Fast Food	$21,840	3,510
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	$34,390	3,460
Personal Care Aides	$23,770	3,370
Office Clerks, General	$33,170	3,320
Registered Nurses	$92,570	3,210
General and Operations Managers	$156,440	3,120
Accountants and Auditors	$88,520	2,990
Customer Service Representatives	$39,760	2,360
Security Guards	$30,280	2,190
Maintenance and Repair Workers, General	$45,300	2,120
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$42,740	1,900
Cooks, Restaurant	$27,960	1,850
Nursing Assistants	$38,600	1,790
Maids and Housekeeping Cleaners	$40,430	1,790
Receptionists and Information Clerks	$32,060	1,790
Stock Clerks and Order Fillers	$23,010	1,730
Laborers and Freight, Stock, and Material Movers, Hand	$25,950	1,720
First-Line Supervisors of Office and Administrative Support Workers	$68,750	1,660
Childcare Workers	$31,970	1,640
Teacher Assistants	$30,110	1,540
Software Developers, Applications	$119,370	1,460

Source: Long-Term Occupational Employment Projections, 2014-2024; New York State Department of Labor.

Perhaps the most striking aspect of Table 3 is how the job titles with the most openings are also the lowest paid: The five top-ranked titles all pay under $30,000 per year. The job title with the most annual openings by far, Home Health Aides, pays slightly less than $24,000 annually.

From a more positive perspective, BCC has several degrees that prepare students for job titles that have both high annual median wage and a significant number of annual openings, such as nursing and accounting. Additionally, this table provides more evidence for creating an educational pathway at BCC that would qualify our students to apply for customer service representative positions.

Summary
The preceding analysis and findings are only a first step in what can be discovered using the resources from the Jobs Scorecard and other data sources. Later in this document, additional elements from the Jobs Scorecard will be used to inform program-level analysis of enrollment, graduation, and transfer. Additionally, the Jobs Scorecard can be used by content experts in academic departments to uncover information helpful for their programs, particularly by taking a deeper dive into the data. BCC access to Burning Glass as a resource allows for this deeper dive.

CHAPTER IV

ANALYSIS: BCC ASSOCIATE DEGREE PROGRAMS

Introduction

This chapter, as well as the three that follow, are structured primarily on the data and analysis from AMP Component #3 (Academic Program Review). These chapters also integrate data and analysis from AMP Component #1 (Labor Market Trends), AMP Component #2 (Educational Trends), and, to a lesser degree, AMP #4 (Academic Structures and Resources).

Research Context, Discussion of Variables, and Program Enrollment Overview

The AMP #3 Subcommittee approached the Academic Program Review (APR) primarily by gathering and analyzing a huge amount of data (with the exceptional assistance of BCC's Institutional Resources Office) on each active BCC associate program, Liberal Arts and Sciences option, and certificate. There were two main data sources: publically available CUNY data from Academic Program Inventory (API) Reports, and, when we needed more data, from BCC's IR Office. The final summary version of these data is found in BCC's AMP Academic Program Review Summary. Since even these tables are rather overwhelming, this chapter and the following three use excerpts from the summary document to highlight key points in the analysis. As will be quite apparent, a lot of work went into structuring these data in a form that would be usable for this effort. Whenever appropriate, the following narrative will link to "source" tables that show many of the data steps involved to get to the summary table. (NB: The source tables are provided only as a resource and for context. They are not necessary for understanding the analysis in this document. If you are interested in doing a "deeper dive" into the source data or have questions, please reach out to the Office of Academic Affairs.)

Nine variables were analyzed, reflecting aspects of enrollment, graduation, and transfer. See Table 4 below for a description of each variable used in the summary analysis. Again, the full analysis of the below variables for BCC associate programs, Liberal Arts and Sciences options, and, when applicable, certificates, can be found at BCC's AMP Academic Program Review Summary.

Table 4

Variables Used for Academic Program Review Summary Analysis

#	Variable:	Description/Rationale:
1	*Context: Five-Year Average Fall Semester Enrollment*	This contextual variable provides an average of the program enrollment over the past five fall semesters, thus giving a sense of the typical enrollment in the program.
2	*Fall 2017 Enrollment*	This variable provides an actual headcount of total enrolled students in the program in Fall 2017, thus giving a sense (when comparing with variable #1) of whether recent enrollment is higher than the program norm. It also gives a sense of which programs have very low current enrollment.
3	*Five-Year Enrollment Change*	This variable reports on the percentage difference in total program enrollment from Fall 2013 to fall 2017.
4	*Five-Year New Student Change*	This variable reports on the percentage difference in new student program enrollment by comparing Fall 2013 and Fall 2017 new student numbers. Note that this variable overlaps to a degree with the "Five Year Enrollment Change" variable, but also gives a sense of whether new students are increasing in the program relative to five years ago.

5	*Context: Five-Year Average Annual Graduates*	This context variable reports on the typical number of graduates from the program per year.
6	*Five-Year Total Graduates*	This variable provides an actual headcount of the <u>total</u> number of graduates a program has produced over the past five academic years (AY), from AY 2012-2013 to AY 2016-2017. This variable indicates, in a raw number, how many or few students the program has graduated in five years.
7	*Graduate Rate: Average Annual Graduates as % of Average Fall Semester Enrolled.*	This variable was calculated by first calculating the average annual program graduates and then the average semester enrollment. When a program has a relatively high percentage of annual graduates (e.g., higher than 20%) compared to Fall semester enrolled, it indicates the program is successful at retaining and graduating students. A low percentage on this variable (e.g., 5%) indicates few students graduate in comparison to the number enrolled in the program.
8	*Qualifying Variable: Non Graduate Transfer Rate*	This variable attempts to report on the relative percentages of students who transfer within CUNY from a BCC program before graduating from BCC. It is calculated by taking the average annual # of former BCC non graduates who transfer to CUNY Senior Colleges (Fall 2013-Fall 2017) as % of average semester enrollment. This variable captures, among others, those students who attended BCC with the goal of transferring as soon as they compiled a strong academic record and may never have had the intention to graduate from BCC. In general, a relatively high percentage in this variable mitigates a low percentage in variable #7 and a low number in variable #6.
9	*Graduate Transfer Rate*	This variable reports on the average % of students who graduate from the BCC program and then enroll at a CUNY senior college within one year. This variable reports on the average for each program using graduates from 2012-2013 to 2015-2016. Limitation: These data do not include transfers to SUNY and private colleges.
10	*Median Time to Graduation*	This variable was calculated by working backward from BCC graduates (who started at BCC as first time freshmen) over the past three years and determining the median number of years they took to graduate. Note that these students may have changed majors in their time at BCC and many started with remedial coursework.

For the variables in the preceding table (with the exception of the contextual and qualifying variables), the programs with "outlying" data were "flagged" as either green (to indicate a high score on the variable, generally a positive) or yellow (to indicate a low score on the variable, which may raise a warning flag that there may be a cause for concern). The logic of this approach was that if a program garners a number of yellow flags across multiple variables (or on a particularly important variable), it is likely justification for a recommendation of further review. Table 5 reports on the first two variables in the AMP 3 analysis for associate programs and provides some basic context for the discussion that follows.

Table 5

Associate Programs: Overview of Enrollment

Award:	Program:	1. Context: Five-Year Average Fall Semester Enrollment*	2. Fall 2017 Enrollment (<20 highlighted; >300 highlighted)*
AAS	*Energy Services and Technology*	*0*	*0*
AAS	*Telecommunications Technology*	*11*	*1*
AAS	Environmental Technology	12	10
AAS	Horticulture	14	16
AAS	Pharmaceutical Manufacturing Technology	27	17
AS	*Biotechnology*	*N/A*	*29*
AAS	Office Administration and Technology	39	39
AS	Mathematics	48	43
AAS	Marketing Management	52	46
AA	*English*	*N/A*	*63*
AS	Science For Forensics	69	63
AS	*Exercise Science and Kinesiology*	*N/A*	*66*
AAS	Nuclear Medicine Technology	73	72
AAS	Paralegal Studies	77	72
AS	Public Health (formerly Community School / Health Education)	98	91
AS	Therapeutic Recreation	107	96
AAS	Accounting	158	105
AAS	Medical Laboratory Technician	137	114
AS	Media and Digital Film Production (formerly AAS Media Technology)	112	122
AAS	Medical Office Assistant	172	139
AAS	Electronic Engineering Technology	147	148
AS	Engineering Science	164	162
AAS	Education Associate	295	195
AAS	Computer Information Systems	205	200
AAS	Radiologic Technology	270	211
AAS	Automotive Technology	237	230
AAS	Digital Arts	227	237
AAS	Human Services	309	275
AS	Computer Science	242	291
AS	Liberal Arts and Sciences	379	382
AS	Dietetics and Nutrition Science	337	390
AAS	Nursing	718	611
AS	Business Administration	910	905
AA	Criminal Justice	1,057	1,033
AA	Liberal Arts and Sciences	3,449	3,531
AAS	*Cybersecurity and Networking*	*N/A*	*N/A*

Table Notes:

*Data Source: CUNY Office of Institutional Research, <u>API Reports</u>

Purple italic indicates program active for fewer than 5 years, which limits analysis.

Light blue italic indicates new student enrollment halted at request of department.

This table is an excerpt from BCC's <u>AMP Academic Program Review Summary</u>

Note that determination of what was an "outlier" for a variable is somewhat arbitrary—it is basically a cut-off range that was chosen on the basis of common sense to result in some modest number of

programs being flagged either yellow or green. Note, as well, that yellow and green may not be meaningful in all cases due to a variety of factors, as will be discussed in later sections.

Additionally, not all APR variables are equally important. While people of good conscience can disagree on the relative importance of some of the variables, it is clear that one variable is very important: *Five-Year Total Graduates*. This one very simple variable tells us how many students each program (or Liberal Arts and Sciences Option) has graduated from BCC in the past five academic years. If a program has graduated very few students in the past ten years (e.g., fewer than 10), it is reasonable to ask whether the program, in current form, is viable. When a program has so few graduates, it raises a host of questions, including but not limited to the following: Are the students graduating from the program getting the education they deserve with so few fellow students? Are the financial, physical, and human resources dedicated to the program justifiable given the small number of graduates? Are there mitigating factors that make the program sustainable with so few graduates? And, if not, can the program be revised to attract and graduate more students?

The following analysis is grouped into four categories (and associated chapters): Associate Programs, AS and AA Liberal Arts and Sciences Options, Certificates, and Inactive Programs. In most cases, the analysis focuses on the programs that are outliers, particularly those programs with outlier data that indicates a potential problem. However, stakeholders are encouraged to review the BCC AMP Academic Program Review Summary more closely for programs in which they have interest. These data can provide valuable information on which to review programs for possible changes.

The analysis in this chapter will focus on BCC associate programs without regard to options. That is, it will focus on only programs that are registered with New York State as distinct degrees. These programs are listed in Table 5, as well as on the first tab of the full AMP Academic Program Review Summary. This Table also gives the overall enrollment picture of BCC associate degrees, as it is ordered by lowest to highest Fall 2017 enrollment. The following analysis will focus on different dimensions of the enrollment, graduation, and transfer data found on the full summary spreadsheet.

Low Total Enrollment/Total Graduates

Table 6 is an excerpt from the summary spreadsheet reflecting programs using the following criteria: (1) have fewer than 10 graduates in the past five year (*Five-Year Total Graduates* yellow flag) or (2) have fewer than 20 enrolled students in Fall 2017 (*Fall 2017 Enrollment*). Note that the following table excludes programs recently launched (e.g., the AAS in Cybersecurity and Networking) as such programs have not yet had the opportunity to enroll and graduate a significant number of students.

Table 6

Associate Programs with Low Fall 2017 Enrollment and/or Few Five-Year Total Graduates

Award:	Program:	2. Fall 2017 Enrollment (<20 highlighted)*	6. Five-Year Total Graduates (< 10 total highlighted)*
AAS	*Energy Services and Technology*	0	0
AAS	Horticulture	16	2
AAS	Pharmaceutical Manufacturing Technology	17	2
AAS	Environmental Technology	10	3
AS	Science For Forensics	63	5
AAS	*Telecommunications Technology*	1	12

Table Notes:
Data Source: CUNY Office of Institutional Research, API Reports
Light blue italic indicates new student enrollment halted at request of department.
This table is an excerpt from BCC's AMP Academic Program Review Summary

The two programs in light blue italic in Table 6, the AAS in Energy Services and Technology and the AAS in Telecommunications Technology, have been dormant for the past year. At the request of the Engineering, Physics and Technology Department (EPT) these programs ceased to accept new students as of Fall 2017. The Department has expressed interest in formally deregistering these programs. Data from AMP Committee #1 generally support this approach: Occupations associated with Energy Services and Technology often do not require an associate degree—the skills might be better learned in a workforce setting (see Jobs Scorecard). This analysis also holds true for Telecommunications Technology, with the added challenge of a shrinking employment field in this area due to technology changes.

The AAS in Horticulture has low enrollment (16 students in Fall 2017), and very low graduation numbers (only 2 in the last five years). The program is registered jointly with the New York Botanical Gardens (NYBG), at which BCC students take horticulture courses alongside NYBG students. While this structure allows for course availability for the small number of BCC students, it creates other challenges, including cost (BCC pays the NYBG tuition for the BCC Horticulture students enrolled at the NYBG), and significant logistical challenges. The AMP Committee #1 review of employment options for program graduates found that the Horticulture program prepares students for employment in fields where an associate degree is not essential (see Jobs Scorecard).

Similar to the Horticulture program, the AAS in Pharmaceutical Manufacturing Technology (PMT) program has very low enrollment (17 students in Fall 2017) and very few graduates over the past five years (2 students). The PMT program requires 7 courses (20 credits) unique to the program (that is, not required by any other degree program. Running courses with so few students can be problematic academically as well as clearly financially problematic. The alternative to running very low enrollment courses/independent studies—substituting other courses—dilutes the academic content of the degree. Additionally, the job alignment for the degree is quite limited, per analysis from AMP Committee 1, with few NYC area jobs for a Chemical Technician, and what jobs there are seem more for students with a

bachelor's degree, not an associate. While graduates could be a Pharmacy Technician, this job does not require a college degree and has low pay (see Jobs Scorecard).

The AAS in Environmental Technology program had 10 students enrolled in the program in Fall 2017, with 3 total graduates over the past five years. The program requires five courses that are unique to the degree (19 credits). As with the PMT degree, this number of unique courses/credits creates academic and financial challenges. Further, the job alignment for the degree is quite limited, per analysis from AMP Committee 1, with few NYC area jobs for an Environmental Technician (see Jobs Scorecard).

The AS in Science for Forensics program has stable though modest enrollment of 63 in Fall 2017. The challenge is that the program graduates few students (only 5 over the past 5 years). Additionally, the program is set up as a dual/join degree with the Forensic Science program at John Jay. Per a review of the CUNY API Report, very few students who graduate transfer to John Jay and, of those, none has graduated in the past five years. These graduation data are not substantively different from that found at peer community colleges with similar programs (see comparative data at AMP Science for Forensics Comparison); that said, it still seems problematic. The students in the program are not graduating in significant numbers and may be using up financial aid eligibility while they attempt to make progress.

Enrollment Trends

The preceding analysis focused on BCC programs with few graduates and/or very low recent enrollment. But the enrollment data also provide valuable information on enrollment trends for more typically sized BCC programs. Some of the more notable enrollment declines are seen in the AAS in Education Associate (-52%) program and in the AAS in Accounting (-48%). Notable increases in enrollment over the past five years is found in the AS in Computer Science (+36%) and the AS in Media and Digital Film Production (+33%). See variable #3 in Table 7 below as well as the AMP Academic Program Review Summary for additional context.

Table 7
Associate Programs with +/- 25% Five-Year Enrollment Change[1]

Award:	Program:	Context: Fall 2013 Enrollment*	2. Fall 2017 Enrollment (<20 highlighted; >300 highlighted)*	3. Five-Year Enrollment Change (+/- 25% Highlighted)*
AAS	Education Associate	407	195	-52%
AAS	Accounting	200	105	-48%
AAS	Radiologic Technology	332	211	-36%
AAS	Nursing	933	611	-35%
AAS	Medical Office Assistant	199	139	-30%
AAS	Medical Laboratory Technician	161	114	-29%
AAS	Marketing Management	64	46	-28%
AAS	Human Services	381	275	-28%
AS	Media and Digital Film Production (formerly AAS Media Technology)	92	122	33%
AS	Computer Science	214	291	36%

Table Notes:
Data Source: CUNY Office of Institutional Research, API Reports
[1]Included in Table are programs with >20 enrolled in Fall 2017.
This table is an excerpt from BCC's AMP Academic Program Review Summary, with Fall 2013 Enrollment from BCC Enrollment and CUNY Peers

In some cases, decreasing enrollment in a program is not entirely a negative. The nursing major, for example, had 993 students enrolled in Fall 2013. Considering that the vast majority of these students were in the pre-clinical nursing major and would struggle to gain admission to the nursing clinical program phase, reducing the number of students in the Nursing pipeline who do not have a good chance at being accepted into the Nursing program is beneficial to students since they are not given false hope about admission (and will not use up their financial aid in a hopeless quest).

That said, a reduction in the overall enrollment of nursing majors could also signal a reduction in the nursing clinical students. BCC institutional research provided additional Nursing enrollment data that disaggregated the Nursing enrollment into pre-clinical and clinical. The Fall 2013 enrollment for Nursing clinical was 165. The Fall 2017 comparable enrollment was 67, for a decrease of -59%. Therefore, there has been a decline in nursing enrollment, both in the major in general and in the clinical phase of the program.

When looking at enrollment trends in BCC programs, it is valuable to put them in the broader context of similar programs at peer CUNY community colleges. Seeing if the trends in BCC programs are mirrored elsewhere can help us understand if the BCC numbers are reflective of broader trends in the field or if they are somehow anomalous. In both cases, there is potential to learn from peer programs in CUNY.

For example, BCC's AAS in Education Associate has seen a 52% decrease in enrollment in the past five years, from 407 in Fall 2013 to 195 in Fall 2017. While the AAS in Early Childhood Education at Hostos also saw enrollment decrease, it was only -13%, from Fall 2013 at 507 to Fall 2017 at 485 (for more detail, see row 50 of the second tab of BCC Enrollment and CUNY Peers). So one question is why did the Hostos program decrease only a little, while the BCC program decreased significantly? A quick look at the Hostos program indicates that is has a different focus from BCC's program. The former is designed to qualify students to work in preschool settings such as daycare centers, residential homes, etc. The BCC program, in contrast, focuses on training students to be paraprofessionals in the New York City school system. It may be possible to learn lessons from the Hostos program, and others inside and outside CUNY, to inform changes in the AAS in Education Associate.

The AAS in Accounting at BCC has also seen a notable decrease in enrollment, from 200 in Fall 2013 to 105 in Fall 2017 for a -48% change. Some peer programs have also shown declines, with Hostos at -44% and BMCC at -20%. However, one AAS in Accounting, at Queensborough, has bucked the trend, growing at 21%. (For more detail, see rows 270, 273, and 279 of the second tab of BCC Enrollment and CUNY Peers.) A superficial review of the program at Queensborough shows more required accounting courses than the program at BCC, including a required Income Taxation, Cost Accounting, and a second Intermediate Accounting course. This may or may not be relevant to the enrollment trend at Queensborough, but it is certainly worth reviewing. A deeper dive could involve a conversation with the program/department chair at Queensborough.

Reviewing the peer CUNY accounting programs unearths another interesting finding: Two colleges (Kingsborough and LaGuardia) appear to have recently converted their AAS programs in accounting into AS programs. (For more detail, see rows 275-278 of the second tab of BCC Enrollment and CUNY Peers.)

18

At Kingsborough, at least, enrollment numbers have recently improved in the now "AS" in Accounting. It may be worth checking with both Kingsborough and LaGuardia regarding the reasons for this conversion. Did they find that students in the AAS Accounting program wanted to continue to a bachelor's degree, which is easier to do with an AS than an AAS? Did they find that students were having difficulty finding employment with an AAS in Accounting?

It is notable that more BCC programs have decreased significantly in enrollment then have increased. This is not surprising, given overall enrollment trends for community college in CUNY and nationwide: Typically, as the economy improves, enrollment at community colleges decreases; students are more likely to enter the workforce directly. The most notable increase in enrollment at BCC is in the AS Computer Science program, which has gone from 214 in Fall 2013 to 291 in Fall 2017 (a 36% increase). While this is an impressive increase, it is significantly smaller than the change at peers: BMCC, 113%; LaGuardia, 125%; Kingsborough, 66%.

The operative question is why? This question can be investigated in a variety of ways, including reviewing curriculum, interviewing department chairs at the peer colleges, etc. A superficial review of curriculum at the two colleges with the largest increases, LaGuardia and BMCC, finds that both programs have introductory computer courses required for the degree—this may entice students to enroll in the program. Additionally, neither program requires Calculus III, though LaGuardia requires Linear Algebra. These curricular differences may or may not be significant vis-à-vis enrollment; additional research would be necessary to get a better understanding of what factors might be involved.

The increase in enrollment in the AS in Media and Digital Film Production is intriguing. The first item to note is that the degree changed from an AAS in Media Technology to an AS in Media and Digital Film Production in 2014-2015. Aggregating the program enrollment shows an increase of 33% since 2014 Fall. The updating of curriculum, and change from an AAS to an AS may have been partially responsible for this increase in enrollment. Notably, a peer program at Kingsborough also changed from an AAS (Media Technology and Management) to an AS (Media Arts), though enrollment in this program has not increased. (For more detail, see rows 14-15 of the second tab of BCC Enrollment and CUNY Peers.)

All stakeholders are encouraged to review the CUNY peers data for the BCC programs in which they have interest. While the preceding analysis focused only on select programs with significant increases or decrease in enrollment, many programs with more stable enrollment could also potentially be informed by the CUNY enrollment context.

Graduate Rates

Enrollment trends provide valuable information on a program, of course, but of equal importance is the rate at which students are being retained in the program and are graduating with a degree. The main measure of retention and graduation in the AMP research is variable #7, the *Graduate Rate*, which reflects the average annual graduates as percentage of average semester enrolled. When a program has a relatively large number of annual graduates compared to annual semester enrolled (e.g., more than 20%), it indicates the program is comparatively successful at retaining and graduating students. A low percentage on this variable (e.g., 10% or lower) indicates relatively few students graduate in comparison

to the number enrolled in the program. Table 8 shows the BCC degrees with a high "score" on this measure as well as those with a low "score".

Table 8

Associate Programs with Comparatively High/Low Graduate Rate

Award:	Program:	1. Context: Five-Year Average Fall Semester Enrollment*	5. Context: Five-Year Average Annual Graduates*	7. Graduate Rate: Average annual Graduates as % of Average Fall Semester Enrolled (Less than 10%, more than 20% Highlighted)*	8. Qualifying Variable: Non Graduate Transfer Rate (Average Annual # of former BCC non graduates who transfer to CUNY Senior Colleges (Fall 2013-Fall 2017) as % of Average semester enrollment.) In general, a high % on variable #8 mitigates a low % on variable #7.**
AS	Science For Forensics	69	1	1%	1.6%
AAS	Nursing	718	39	5%	4.2%
AS	Computer Science	242	13	5%	4.4%
AS	Liberal Arts and Sciences	379	34	9%	7.5%
AS	Engineering Science	164	15	9%	4.6%
AAS	Paralegal Studies	77	21	28%	1.7%
AS	Dietetics and Nutrition Science	337	96	29%	4.7%
AS	Public Health (formerly Community School / Health Education)	98	35	35%	1.8%

Table Notes:

Data Source: CUNY Office of Institutional Research, API Reports

**Data Source: BCC Office of Institutional Research*

This table is an excerpt from BCC's AMP Academic Program Review Summary

Of the five programs with the lowest scores on this variable, four are in the sciences and one is in a very competitive allied health program. It is possible that students in the four science programs may struggle to complete the significant math and science requirements in these programs, resulting in the low graduation numbers relative to overall enrollment. That is, many students may not be prepared for the academic challenges of the degree and either drop out or change majors.

An alternative explanation is that some of the students in these programs transfer to senior colleges before graduating, thus reducing the graduate count and lower the rate of graduates to enrolled. If this is the case for a significant number of students, it would mitigate the low graduate rate. The logic is that some students come to community college with the goal of showing they can succeed, earning some credits, and then transferring to a senior college. When a student exercises this option, one could argue, this does not represent a failure on the part of the community college. Instead it fulfills one of the roles of a community college in providing access to academic achievement. The fact that the student does not

earn his or her associate degree in Computer Science, for example, is not a failure if the student used his/her community college experience as a stepping stone to a bachelor's degree.

Some evidence that students are exercising this pre-graduation transfer option can be found in qualifying variable #8, which can be understood as the rate at which students in the program transfer to the senior college from BCC without first graduating. (For those very interested in how this was calculated, see source data tables here.) Three of the four science programs have higher than the norm rates on this variable, with the highest being the AS in Liberal Arts and Sciences at 7.5%. This indicates that a significant percentage of students transfer to the senior college before graduating. Of course, this does not show that students are succeeding in earning the bachelor's degree, but it is evidence that students are using the community college experience toward their goals beyond the associate degree. Notably different in this regard is Science for Forensics, where students transfer before graduating at a very low rate (1.6%). In all four cases, and particularly for Science for Forensics, the question is what students do when they do not graduate from BCC. Are they just dropping out or are they changing majors and, if the latter, to what? And are they succeeding when they do change majors?

Nursing is the fifth degree with a low graduate to enrolled percentage rate. Certainly the rigors of the program seem likely to contribute to this rate, as is the case with the four science programs. However, nursing has characteristics that are not found in the other majors, including a cap on the number of students who can be enrolled in clinical coursework every semester, as well as rigorous admission requirements to the clinical program. In many cases, students are admitted to the pre-clinical phase of the program but later fail to be admitted into the clinical phase.

The Nursing issue of having a large population of students in the major but not yet admitted into the clinical portion of the program is not unique to BCC. Other CUNYs seem to have this issue as well, as evidenced by high enrollment numbers in Nursing at colleges like LaGuardia (1058 in Fall 2017) and Hostos (767 in Fall 2017), but low populations of graduates. Several CUNY colleges, however, have taken steps to address this issue: Both Queensborough and BMCC have created degrees in health professions/health sciences that appear to offer an alternative track for students who are interested in Nursing but are unable to be admitted to the Nursing clinical program. Kingsborough achieves similar goals with their "Allied Health Transfer Option" in their AS in Biology. These colleges have found a viable way to offer nursing-intent students an alternative degree path that appears well-aligned with the nursing program and student goals. (For more detail on Nursing enrollment and graduation at peer CUNY colleges, see rows 243-252 of the second tab of BCC Enrollment and CUNY Peers.)

Transfer Analysis

One of the primary roles of a community college (going back to their origins as "junior colleges") is to prepare students for transfer to a senior college. While students sometimes transfer before earning the associate degree, as we see in variable #8, the standard path of student transfer is completion of the associate degree and then transfer to the senior college. Historically, AA and AS degrees are considered "transfer" degrees, from which a student is expected to continue to a senior college. The AAS degree has been termed a "career" or "terminal" degree, with which a student could seek immediate employment after earning the associate degree and does not need a four-year degree for his/her field.

Table 9 reports on the percentage of BCC graduates of each program who transfer to a senior CUNY college within a year of graduating from BCC. Note that this table reflects an average of four years of data (2012-2013 to 2015-2016). (For those very interested in how this was calculated, please see source data here.)

Table 9

Associate Program Graduates Transfer Rate

Award:	Program:	9. Graduate Transfer Rate to CUNY Senior College within one year of BCC graduation (average of 2012-13 to 2015-16).**
AAS	Nuclear Medicine Technology	9.0%
AAS	Automotive Technology	16.0%
AAS	Radiologic Technology	18.0%
AAS	Medical Office Assistant	22.0%
AAS	Electronic Engineering Technology	25.0%
AAS	Office Administration and Technology	28.0%
AAS	Marketing Management	40.0%
AAS	Digital Arts	43.0%
AS	Public Health (formerly Community School / Health Education)	43.0%
AAS	Medical Laboratory Technician	46.0%
AAS	Computer Information Systems	49.0%
AS	Media and Digital Film Production (formerly AAS Media Technology)	49.0%
AAS	Accounting	50.0%
AAS	Nursing	51.0%
AAS	Education Associate	53.0%
AAS	Human Services	54.0%
AS	Engineering Science	55.0%
AS	Business Administration	61.0%
AS	Dietetics and Nutrition Science	61.0%
AAS	Paralegal Studies	63.0%
AS	Therapeutic Recreation	65.0%
AA	Liberal Arts and Sciences	65.0%
AA	Criminal Justice	74.0%
AS	Liberal Arts and Sciences	75.0%
AS	Computer Science	75.0%
AS	Mathematics	79.0%

Table Notes:

**Data Source: BCC Office of Institutional Research

This table is an excerpt from BCC's AMP Academic Program Review Summary

While the data in Table 6 is limited in that it reports only on transfers to CUNY senior colleges (excluding SUNY and privates), it does still provide valuable detail, in part because the vast majority of our graduates who transfer stay within CUNY. BCC Institutional Research indicates that analysis of BCC 2010-2014 graduate enrollment behavior found that approximately 87% transferred within CUNY.

Perhaps most notable in the data is the number of AAS programs where over 50% of graduates are enrolled in a bachelor's program at another CUNY within a year of graduating from BCC: Paralegal Studies, Human Services, Education Associate, and Accounting. This is consistent with findings elsewhere in the AMP research, such as trends at CUNY peer colleges in some fields toward conversion of AAS degrees into AS degrees, and job market preferences in some fields for bachelor's degrees over associate degrees.

These high rates of AAS graduates pursuing a bachelor's degree is not evenly distributed. Some AAS programs—e.g., Nuclear Medicine Technology, Automotive Technology, and Radiologic Technology—are all under 20% in terms of graduates transferring to a CUNY senior college shortly after earning the associate. This may indicate that an associate degree in those fields is sufficient for employment in the field.

Time to Graduation

While the associate degree is often referred to as a "two-year" degree, it is far from it for most students. The most recent data for BCC indicates that only 3.1% of first-time, full-time freshmen finish BCC in two years and only 16% in three years. While these percentages are low, they have been improving, and the ASAP expansion is intended, in part, to continue this trend. Timely completion is important for many students for a variety of reasons, including the need to conserve financial aid for a bachelor's degree.

Given the importance of timely completion of degree requirements, the AMP Committee asked for a measure of time-to-degree completion by program. There are multiple challenges in constructing such a measure. If you start with full-time, first time freshmen who begin in the same major that they complete, you will wind up with a very small population, missing all the student who change majors, attend part time, etc. We decided, therefore, to work from our actual population of graduates who began as first-time freshmen and work backward from their final degree program. Table 10 highlights the outliers on each end of the analysis. (For those very interested in how this variable was calculated, see source data here.)

Table 10
Median Time to Graduation

Award:	Program:	10. Median Time to Graduation for past three years of graduates who started as first time freshmen (>=5.0 or <=3.0 Highlighted); Note: x=Not Calculated due to N grads <10
AS	Liberal Arts and Sciences	2.8
AS	Mathematics	2.8
AAS	Automotive Technology	3.0
AAS	Education Associate	5.0
AAS	Nuclear Medicine Technology	5.2
AAS	Nursing	5.4
AS	Public Health (formerly Community School / Health Education)	5.4

Table Notes:
Data Source: BCC Office of Institutional Research
This table is an excerpt from BCC's AMP Academic Program Review Summary

The three majors in green—the fastest median completers—are intriguing. Two of these majors have significant math/science requirements—the AS LAS and the AS Mathematics. Since many of our BCC students begin with remedial needs, one might expect that it would take a long time for students in these majors to complete the degree. However, it appears, at least for the median graduate, that this is not the case. It may be worth investigating the pool of graduates for these majors to see what percentage of them started with remedial math need. If virtually all of them started with no math remediation need, then this information could impact advisement of new students who express interest in these majors. The AAS in Automotive Technology is an interesting case as well: This is a highly technical degree and the only one of its kind in CUNY. As such, it may be drawing a student population that is more focused on attaining a specific degree—thus less likely to change majors and increase time to degree.

The yellow highlighted all had a median completion time of 5 years or more. This could be due to any multitude of factors, including some completely beyond the control of the department. For example, many students in these majors may wind up having to disproportionately attend part time, have disproportionately high remedial needs, or change majors one or more times before pursuing the degree with which they ultimately graduate. Two programs on the list—Nursing and Nuclear Medicine Technology—have rigorous clinical phases and a process through which students have to apply to the clinical phase after completing prerequisites; this may also slow the process toward degree completion. That said, further inquiry from stakeholders would be advisable to see if there is an impediment to timely completion that we, as an institution, could address.

CHAPTER V

ANALYSIS: BCC LIBERAL ARTS AND SCIENCES OPTIONS

Introduction and Enrollment Overview

At BCC, many students are enrolled in either the AA Liberal Arts and Sciences (3,531 in Fall 2018) or the AS in Liberal Arts and Sciences (382 in Fall 2017). The AA program (hereafter referred to as the AA LAS) is by far the biggest program at BCC. The AS program (hereafter referred to as the AS LAS) is the biggest STEM program. However, these two programs are more complex than initially meets the eye. Each of these programs has within it "options" from which students can choose to specialize. Students often view these options as their "majors" instead of the broader liberal arts and sciences program. Given both the size of these programs and the diversity of options in each, this section will analyze these options in a fashion similar to the program analysis in the previous section, when applicable and practicable. Additionally, this section will also review appropriate LAS options for the potential to be converted to "stand-alone" programs. The main table from which the following tables are generated can be found on the second tab of the AMP Academic Program Review Summary. Source data for the APR Summary spreadsheet can be in the Source Data Liberal Arts Options file. Note that the data for this chapter is provided by BCC IR; CUNY does not have publicly-available data on program options.

Table 11
AA/AS in Liberal Arts and Sciences: Overview of Enrollment

Award:	Program:	Option:	1. Context: Five-Year Average Fall Semester Enrollment	2. Fall 2017 Enrollment (<20 highlighted; >300 highlighted)*
AS	Liberal Arts and Sciences	Physics	13	7
AS	Liberal Arts and Sciences	Earth Systems & Environmental Science	7	11
AA	Liberal Arts and Sciences	Spanish	11	12
AA	Liberal Arts and Sciences	History	18	21
AA	Liberal Arts and Sciences	*Secondary Education*	*23*	*35*
AA	Liberal Arts and Sciences	Sociology	33	35
AA	Liberal Arts and Sciences	Media Studies	49	43
AA	Liberal Arts and Sciences	Performing Arts	32	43
AA	Liberal Arts and Sciences	Political Science	32	55
AA	Liberal Arts and Sciences	Speech Pathology	55	57
AS	Liberal Arts and Sciences	General (option required to grad)	74	78
AS	Liberal Arts and Sciences	Chemistry	86	80
AS	Liberal Arts and Sciences	Biology	200	209
AA	Liberal Arts and Sciences	Human Services	230	222
AA	Liberal Arts and Sciences	Psychology	413	381
AA	Liberal Arts and Sciences	Early Childhood and Childhood Education	320	387
AA	Liberal Arts and Sciences	General	2178	2237
AA	Liberal Arts and Sciences	*Studio Art*	*0*	*N/A*

Notes:
Data Source: BCC Office of Institutional Research
Purple italic indicates option active for fewer than 5 years, which limits analysis.
This table is an excerpt from BCC's AMP Academic Program Review Summary

As is apparent from Table 11, the AA LAS "general" or "no option" track is by far the largest of the LAS variants. Two specific options, however, are also particularly well-enrolled: the Early Childhood & Childhood Education option (387 students in Fall 2017) and Psychology (381 students in Fall 2017). One

question is whether one or both of these options would be better as stand-alone degree programs. The advantages to stand-alone programs are significant, including the following: First, a stand-alone program can offer more discipline-specific content than the 12 credits in the typical option. Second, a stand-alone program may be more appealing for some students: Options do not appear on a student's diploma, but the degree name does. Third, more students may be attracted to a program, as opposed to an option, partially because a program is more prominent when declaring a major on the CUNY application.

A comparison with CUNY peers may be valuable: At least one CUNY peer has a "stand-alone" AS in Early Childhood Education program: Kingsborough Community College. The norm in CUNY, however, appears to have teacher education transfer programs offered as a track/option in the Liberal Arts degree, as BCC does. Stand-alone psychology programs are found at two community colleges, LaGuardia and Borough of Manhattan Community College (BMCC). The latter college just launched the stand-alone psychology program in 2016. (For more details, see rows 45, 137, and 138 of the second tab of BCC Enrollment and CUNY Peers.)

The largest AS LAS option at BCC, by far, is Biology, with 209 students in Fall 2017. Notably, stand-alone biology degrees do exist at peer CUNY community colleges, including at Kingsborough, and most recently, at LaGuardia. Enrollment in the AS Biology at Kingsborough is particularly robust, though it is not possible from publically available data to determine what percentage of overall enrollment in the program is from the allied health option in the degree. (For more details, see rows 108 and 109 of the second tab of BCC Enrollment and CUNY Peers.)

The lack of access to "option-level" data at Kingsborough raises an important data issue relevant to the discussion of AA/AS LAS Options: CUNY provides data on the program level only, not on the option level. Therefore, this discussion of BCC Options does not benefit from comparison with options at other CUNYs. The only contextual CUNY data we can use is of programs—so when other colleges have a full program in a major that BCC offers as an option, we can use that data in contrast to the BCC Option. The difficulty, though, is that an option differs in size and nature from a program, so it is not a truly equivalent comparison.

Low Total Enrollment/Total Graduates

Table 12 lists liberal arts options using the following criteria: (1) have fewer than 10 graduates in the past five year (*Five-Year Total Graduates* yellow flag) or (2) have fewer than 20 enrolled students in Fall 2017 (*Fall 2017 Enrollment* yellow flag). Note that the following table excludes recently launched options (Studio Art. Secondary Education), because they are too new to provide meaningful data.

Table 12

Liberal Arts Options with Low Fall 2017 Enrollment and/or Few Five-Year Total Graduates

Award:	Program:	Option:	2. Fall 2017 Enrollment (<20 highlighted)	6. Five-Year Total Graduates (< 10 total highlighted)
AS	Liberal Arts and Sciences	Earth Systems and Environmental Science	11	5
AS	Liberal Arts and Sciences	Physics	7	7
AA	Liberal Arts and Sciences	Spanish	12	11

Table Notes:
Data Source: BCC Office of Institutional Research
This table is an excerpt from BCC's AMP Academic Program Review Summary

Low total graduates, defined as fewer than 10 students in the past five years, in the AA/AS LAS options present the same questions of viability as for programs with low total graduates: When an option has so few graduates, it raises a host of questions, including but not limited to the following: Are the students graduating from the option getting the education they deserve with so few fellow students? Are the financial, physical, and human resources dedicated to the option justifiable given the small number of graduates? Are there mitigating factors that make the option sustainable with so few graduates? And, if not, can the option be revised to attract and graduate more students?

There is a key difference, though, when reviewing options as compared to programs: Typically an option has far fewer, if any, courses that are completely distinct to the option compared with a program. For example, in the AA LAS Options, the "option" consists of only 12 credits and an AS LAS option consists of 18 credits. Additionally, often most, if not all, courses in an option are applicable to another major or to the core, so they are not being offered only for the students in the option. For example, the Physics Option has very few students (7 in Fall 2017) and few total graduates (7 over the past five years). However, all courses in the physics option are required in other programs with significant enrollment (e.g., AS Engineering Science).

The courses required for the Earth Systems and Environmental Sciences Option present a somewhat more complicated case than those in the Physics Option. The two Earth Systems Science courses for the option also count toward core, so they are widely offered. CHM 33 Quantitative Analysis is required for Science for Forensics and is an option in the Chemistry Option, so it has an existing modest enrollment demand. The CHM 27 Principles of Laboratory Safety course is offered also in the AAS in Pharmaceutical Manufacturing Technology program, which also has very low enrollment.

The AA LAS Spanish Option appears on this table only because it has relatively low Fall 2017 enrollment; it's graduate count is higher than 10 in the past five years. Concerns about low enrollment are mitigated by the lack of required courses distinct to the option: the courses in the option are typically in the core, which encourages course section enrollment. Additionally, the option affords the student a significant amount of course choice, so a student can likely finish the option taking only courses offered for the core.

Enrollment Trends

The preceding analysis focused on AA/AS LAS Options with few graduates and/or very low recent enrollment. But the enrollment data also provide valuable information on enrollment trends for more typically sized BCC LAS options as well. See Table 13 below for the Options that have increased or decreased in enrollment by at least 25% in the past five years.

Table 13

AA/AS LAS Options with +/- 25% Five-Year Enrollment Change[1]

Award:	Program:	Option:	Context: Fall 2013 Enrollment*	2. Fall 2017 Enrollment (<20 highlighted; >300 highlighted)	3. Five-Year Enrollment Change (+/- 25% Highlighted)
AA	Liberal Arts and Sciences	Sociology	24	35	45.8%
AA	Liberal Arts and Sciences	Early Childhood and Childhood Education	263	387	47.1%
AA	Liberal Arts and Sciences	Performing Arts	22	43	95.5%
AA	Liberal Arts and Sciences	Political Science	23	55	139.1%

Table Notes:
Data Source: BCC Office of Institutional Research
[1]Excluded from Table are programs with <20 enrolled in Fall 2017.
This table is an excerpt from AMP Academic Program Review Summary; Fall 2013 Enrollment from Source Data Liberal Arts Options

Perhaps the most obvious "take away" in regard to Table 13 is that no options with Fall 2017 enrollment of >20 saw enrollment declines of 25% or more. That is, no yellow flags. This may be a reflection of a student desire to specialize in an academic area, even when pursuing a clearly "transfer-oriented" associate degree like the AA / AS in Liberal Arts and Sciences.

Of the four Options that grew more than 25%, three are modest in size: Sociology, Performing Arts, and Political Science. The fourth option, in Early Childhood and Childhood Education, however, is very big, with 387 students enrolled in Fall 2017, which represents a 47.1% increase in total enrollment since Fall 2013. This expansion clearly demonstrates a strong interest in a teaching career among BCC students, and provides support for the potential, already discussed briefly, of a stand-along transfer-focuses education program. The expanded enrollment also provides an interesting counterbalance to the already-discussed decreased enrollment in the AAS in Education Associate, which prepares students to be paraprofessionals.

Graduate Rates

As described earlier in the associate degree analysis, the main measure of retention and graduation in the AMP analysis is variable #7, the *Graduate Rate*. This rate reflects the average annual graduates as percentage of average semester enrolled. The higher the percentage on this variable, the more effective this program is at getting students through to graduation. See Table 14 for the high and low scores on this variable among the AA and AS Liberal Arts and Sciences majors.

Table 14

Average Annual Graduates as % of Semester Enrolled.

Award:	Program:	Option:	1. Context: Five-Year Average Fall Semester Enrollment*	5. Context: Five-Year Average Annual Graduates*	7. Average Annual Graduates as % of Average Semester Enrolled (Less than 10%, more than 20% Highlighted)*	8. Qualifying Variable: Non Graduate Transfer Rate (Average Annual # of former <u>BCC non graduates</u> who transfer to CUNY Senior Colleges (Fall 2013-Fall 2017) as % of Average semester enrollment.) In general, a high % on variable #8 mitigates a low % on variable #7.**
AS	Liberal Arts and Sciences	Biology	200	17.2	9%	8%
AA	Liberal Arts and Sciences	Human Services	230	50.4	22%	2%
AA	Liberal Arts and Sciences	Early Childhood and Childhood Education	320	71.6	22%	4%
AA	Liberal Arts and Sciences	Media Studies	49	11.2	23%	4%
AA	Liberal Arts and Sciences	Speech Pathology	55	12.4	23%	5%
AA	Liberal Arts and Sciences	Psychology	413	103	25%	3%
AA	Liberal Arts and Sciences	Political Science	32	8.8	28%	3%

Table Notes:

Data Source: CUNY Office of Institutional Research, <u>API Reports</u>

**Data Source: BCC Office of Institutional Research*

This table is an excerpt from BCC's <u>AMP Academic Program Review Summary</u>

The AS LAS Biology Option is showing the lowest score on this variable. This is likely due to two factors: First, the challenging nature of the curriculum in terms of math and science requirements possibly leading to students changing majors or dropping out, and, second, a tendency for some students to transfer to a senior college before graduating. Variable 8 indicates some evidence for this second theory, as the score on this variable is quite high (8%), indicating that a relatively large percentage of students in this option transfer to a senior college before completing the degree.

Multiple AA Liberal Arts options cluster on the high end of this variable, with scores of more than 20%, indicating that they are quite effective in retaining and graduating students. Notably, two of the largest liberal arts options are included in this group—Psychology and Early Childhood & Childhood Education. These two options have already been discussed as possible candidates for development as stand-alone degree programs; these scores add more support to that idea.

Transfer Analysis

As seen already, the AA Liberal Arts and Sciences program students transfer to a CUNY senior college within a year of BCC graduation at an average rate of 65%; AS Liberal Arts and Sciences students transfer at a 75% average rate. This difference could be due to a variety of factors, including the role of the AA as a "fall back" degree for some students who were unable to complete or decide on another degree program. The AS degree requires students to make a specific commitment to STEM, so there may be

more intentionality for some students in picking the AS degree, and this may translate into higher transfer numbers.

This distinction between AA and AS transfer numbers in general are largely also seen when one drills down to the option level. That is, AA option students are less likely to transfer than AS option students. See Table 15 for rates by option.

Table 15
AA and AS Liberal Arts and Sciences Options Graduates Transfer Rate

Award:	Program:	Option:	9. Graduate Transfer Rate to CUNY Senior College within one year of BCC graduation (average of 2012-13 to 2015-16).
AA	Liberal Arts and Sciences	Performing Arts	54%
AA	Liberal Arts and Sciences	General	62%
AA	Liberal Arts and Sciences	Media Studies	66%
AA	Liberal Arts and Sciences	Psychology	68%
AA	Liberal Arts and Sciences	Human Services	68%
AA	Liberal Arts and Sciences	Political Science	70%
AS	Liberal Arts and Sciences	Chemistry	70%
AA	Liberal Arts and Sciences	Early Childhood and Childhood Education	70%
AA	Liberal Arts and Sciences	Spanish	71%
AA	Liberal Arts and Sciences	History	71%
AA	Liberal Arts and Sciences	Sociology	76%
AS	Liberal Arts and Sciences	Biology	78%
AS	Liberal Arts and Sciences	Physics	86%
AA	Liberal Arts and Sciences	Speech Pathology	88%

Table Notes:
**Data Source: BCC Office of Institutional Research
This table is an excerpt from BCC's AMP Academic Program Review Summary

Perhaps the most striking transfer rate is in the Speech Pathology option, with a rate of 88%, higher than the Physics and Biology options. This likely speaks to how essential a higher degree is in the field of speech pathology. On the low end in terms of transfer is Performing Arts. This may speak to how unnecessary a higher degree is in this field.

Time to Graduation

In general, there is minimal difference in median time to graduation by liberal arts option, with most clustered near 3 years. This makes sense given how small most options are and how little differs from one option to the next. Perhaps the most notable finding is how AS students graduate more quickly than the norm, with physics and biology option students the fastest at a median rate of 2.7 years. This is particularly notable given that students in the AS program take an extensive math sequence, which might have led one to think that they would take longer, particularly if they had remedial courses first. As already discussed, more analysis would be helpful in reviewing the entering skills profile of students who graduate in STEM fields.

Table 16

Median Time to Graduation

Award:	Program:	Option:	10. Median time to graduation for past three years of graduates who started as first time freshmen (>=5.0 or <=3.0 Highlighted)
AS	Liberal Arts and Sciences	Biology	2.7
AS	Liberal Arts and Sciences	Physics	2.7
AA	Liberal Arts and Sciences	Sociology	2.9
AA	Liberal Arts and Sciences	General	3.0
AA	Liberal Arts and Sciences	Performing Arts	3.0
AS	Liberal Arts and Sciences	Chemistry	3.0
AA	Liberal Arts and Sciences	Media Studies	3.0
AA	Liberal Arts and Sciences	Political Science	3.0

Table Notes:

Data Source: BCC Office of Institutional Research

This table is an excerpt from BCC's AMP Academic Program Review Summary

CHAPTER VI

ANALYSIS: BCC CERTIFICATES

Introduction and Enrollment Overview

With the exception of three programs—Licensed Profession Nursing (LPN), Automotive Technician, and Animal Care and Management—BCC certificate programs are characterized by very low enrollment. See Table 17.

Table 17

Certificate Programs: Overview of Enrollment and Five-Year Enrollment Change

Program:	1. Context: Average Fall Semester Enrollment*	2. Fall 2017 Enrollment (<20 highlighted)*
Bilingual Early Childhood Assistant	6	1
Paralegal Studies	4	1
Community Health	*1*	*3*
Assistant of Children with Special Needs	5	3
Early Childhood Assistant	16	10
Licensed Practical Nursing (LPN)	74	38
Automotive Technician	45	40
Animal Care and Management	44	51
Cybersecurity and Networking	*N/A*	*N/A*

Table Notes:
*Data Source: CUNY Office of Institutional Research, API Reports
Purple italic indicates program active for fewer than 5 years, which limits analysis.
Light blue italic indicates new student enrollment halted at request of department.
This table is an excerpt from BCC's AMP Academic Program Review Summary

Low enrollment in certificate programs in CUNY is the norm, as can be seen on the fourth tab of BCC Enrollment and CUNY Peers. The most successful certificate programs appear to be those that are clearly tied to an industry credential (e.g., LPN), or a very marketable skill (e.g., automotive). Community colleges in CUNY are far below the norm in regard to enrollment in and graduation from certificate programs relative to associate programs. According to the National Center for Educational Statistics, in Academic Year 2015-2016, post-secondary institutions awarded 1,939,000 associate degrees and (below-associate-degree) certificates. Of these credentials, nearly half (48%) were certificates. In contrast, in 2016-2017, CUNY awarded 17,545 associate degrees and (below-associate-degree) certificates. Of these credentials, only 173 were certificate programs—not even 1%. This striking contrast calls out for more investigation into the potential to leverage certificate programs for our students.

Low Total Enrollment/Total Graduates

BCC has five certificate programs with very low fall 2017 enrollment (<20) and very few total graduates (<10) over the past five years. See Table 18.

Table 18

Certificate Programs with Low Fall 2017 Enrollment and/or Few Five-Year Total Graduates

Program:	2. Fall 2017 Enrollment (<20 highlighted)*	6. Five-Year Total Graduates (< 10 total highlighted)*
Community Health	*3*	*0*
Bilingual Early Childhood Assistant	1	1
Early Childhood Assistant	10	2
Paralegal Studies	1	5
Assistant of Children with Special Needs	3	6

Table Notes:
Data Source: CUNY Office of Institutional Research, API Reports
Light blue italic indicates new student enrollment halted at request of department.
This table is an excerpt from BCC's AMP Academic Program Review Summary

For one of these programs, Community Health, new enrollment has been halted at the request of the department. Due to a variety of factors beyond the control of BCC, this recently-launched certificate is not a good match with local needs. Therefore, the department offering the program—Health, Physical Education and Recreation (HPER)—plans to discontinue/deregister the certificate. HPER, however, has been collaborating with Workforce and Economic Development to develop noncredit, stackable credentials to take the place of this certificate. Two of these noncredit credential programs (Behavioral Health Opportunities Program and Certified Recovery Peer Advocate) have already been developed through this collaboration, both of which offer stackable credit toward the AS in Public Health.

In regard to the remaining four programs: Low enrollment and total graduates in certificate programs raise the same questions of viability as for associate programs and liberal arts options, including: Are the students graduating from the certificate getting the education they deserve with so few fellow students? Are the financial, physical, and human resources dedicated to the certificate justifiable given the small number of graduates? Are there mitigating factors that make the certificate sustainable with so few graduates? And, if not, can the certificate be revised to attract and graduate more students?

A review of these four certificate programs finds that the courses required are also applicable to more robustly enrolled associate programs. In the case of the three education certificates (Bilingual Early Childhood Assistant, Early Childhood Assistant, and Assistant of Children with Special Needs), the education courses required for these programs are also applicable to the more robustly enrolled AAS in Education Associate and the AA Liberal Arts and Sciences education option degrees. In the case of the Certificate in Paralegal Studies, the paralegal courses required also apply to the bigger AAS in Paralegal Studies. The bottom line, then, is that the small number of students in these certificates are not disadvantaged due to low enrollment nor is the college unduly burdened in running low-enrollment courses.

Enrollment Trends

The following table highlights two certificates that are showing either an increase or decrease of 25% enrollment compared with five years ago.

Table 19

Certificate Programs with +/- 25% Five-Year Enrollment Change[1]

Program:	Context: Fall 2013 Enrollment*	2. Fall 2017 Enrollment (<20 highlighted)*	3. Five-Year Enrollment Change (+/- 25% Highlighted)*
Licensed Practical Nursing (LPN)	77	38	-51%
Animal Care and Management	28	51	82%

Table notes:
Data Source: CUNY Office of Institutional Research, API Reports
[1]*Excluded from Table are certificates with <20 enrolled in Fall 2017.*
This table is an excerpt from BCC's AMP Academic Program Review Summary, with Fall 2013 Enrollment from BCC Enrollment and CUNY Peers

The LPN program is currently not accepting new students pending New York State approval of a major curricular revision. This revision modernizes the curriculum, decreases total credits required, and better aligns with the registered nursing program to facilitate LPNs becoming RNs. Upon New York State approval of the new curriculum, the LPN program is expected to grow to healthy enrollment, consistent with the two other CUNY LPN programs at Hostos (79 enrolled, Fall 2018) and LaGuardia (206 enrolled, Fall 2018).

The Animal Care and Management program has grown significantly over the past 5 years, albeit from a small base enrollment of 28 students in Fall 2013 to the most recent enrollment of 51. Note, as well, that this increase may be somewhat misleading, since the Fall 2013 enrollment was likely due in part to the financial aid difficulties BCC was experiencing for certificate program students at that time. That said, the Animal Care and Management program is unique as a certificate program within CUNY community colleges; there is one associate program in Veterinary Technology at LaGuardia, with very strong enrollment of 392 students in Fall 2017.

Graduate Rates

As described earlier in both the associate degree analysis and liberal arts options analysis, the main measure of retention and graduation in the AMP research is variable #7, the *Graduate Rate*. This rate reflects the average annual graduates as percentage of average semester enrolled. The higher the percentage on this variable, the more effective this program is at getting students through to graduation. See Table 20 for the high and low scores on this variable among certificate programs. Note that enrollment in most certificate programs is so low that they were excluded from this analysis.

Table 20

Average Annual Graduates as % of Semester Enrolled.

Program:	1. Context: Average Fall Semester Enrollment*	5. Context: Five-Year Average Annual Graduates*	7. Average annual Graduates as % of Average Fall Semester Enrolled (Less than 10%, more than 20% Highlighted)*
Licensed Practical Nursing (LPN)	74	4.4	6%
Automotive Technician	45	10	22%

Table Notes:

*Data Source: CUNY Office of Institutional Research, API Reports

1Excluded from Table are certificates with <20 enrolled in Fall 2017.

This table is an excerpt from BCC's AMP Academic Program Review Summary

The LPN program's low percentage on this variable is at least partially due to the same issue that the AAS in Nursing encounters: A significant number of students who are in the major but not in the actual clinical program. Given that the program's admission is competitive, this limits the number of students who even have the opportunity to complete the program. As the LPN program is currently being restructured, both in terms of total credits and admission requirements, this issue would likely be resolved. The automotive technician program scores well on this variable, demonstrating that the program successfully graduates students at a high rate.

Transfer Analysis

Transfer data was not calculated for certificate programs because of certificates are not designed for the purpose of transfer. Note that certificate programs are, in some cases, designed to "stack" into associate programs, allowing students to build toward higher credentials. Some amount of stacking may be occurring at BCC, particularly in programs where a logical educational path exists from the certificate to a degree (e.g., LPN stacking into Nursing, education certificates stacking into the AAS Education Associate). Further research would be appropriate in this area.

Time to Graduation

Only one certificate program showed a median time to graduation of over 5 years: the LPN program. This issue is being addressed by the Nursing Department with a major revision to the LPN program that has already reduced the required number of credits needed for the degree from 56 to 47. Due to New York State requirements, this number is likely to be further reduced. Additionally, NYS requirements may result in a change in admission process as well, which may also accelerate program completion.

Table 21

Median Time to Graduation

Program:	10. Median time to graduation for past three years of graduates who started as first time freshmen (>=5.0 or <=3.0);
Licensed Practical Nursing (LPN)	5.8

Table Notes:

Data Source: BCC Office of Institutional Research

1Excluded from Table are certificates with <= 10 total graduates or <= 20 enrolled in Fall 2017.

This table is an excerpt from BCC's AMP Academic Program Review Summary

CHAPTER VII

ANALYSIS: BCC INACTIVE PROGRAMS

In the process of the research in to the Academic Master Plan, it became clear that we have three programs on file with the New York State Department of Education (NYSED) that we have not offered for some time, if ever at all.

Table 22

Inactive But Registered Programs

Award:	Program:	Department:	NYSED Program Code:	Notes:
AAS	Warehouse Management	Business and Information Systems	27000	Not active at BCC, but still registered with NYSED
Certificate	Child Welfare	Education and Academic Literacy	19876	Not active at BCC, but still registered with NYSED
Certificate	Medical Assistant	Business and Information Systems	27862	Not active at BCC, but still registered with NYSED

Table Notes:

Data Source: CUNY Office of Institutional Research, API Reports

These three programs and sponsoring academic departments have been notified that action need be taken regarding these programs in the 2018-2019 academic year. Per correspondence with New York State and the CUNY Office of Academic Affairs, it has been made clear that these programs must either be deregistered or they must be activated and offered to our student. Failure to do either is problematic in that these programs appear on New York State's Inventory of Registered Programs for Bronx Community College, thus possibly misleading a student.

CHAPTER VIII

ANALYSIS: CUNY PEERS

Introduction

This document, thus far, has taken multiple perspectives on BCC academic programs. It began by examining labor market trends and BCC program alignment to those trends. It then analyzed BCC programs, liberal arts options, and certificates in the context of key data markers relating to enrollment, graduation, and more. This section will engage in additional analysis, particularly by looking at the following for elements that may inform BCC programs and structures: (1) CUNY peers program comparison, (2) CUNY new programs analysis, and (3) CUNY departmental structures. (Note that some of these elements have been integrated into the analysis already; this section will consider additional implications as well as provide more context and uses for the data compiled.)

CUNY Peers Program Analysis

To engage in this analysis, we compiled enrollment and graduation data on all CUNY community college academic programs (certificate and associate degree) since 2008-2009. The source data are from the CUNY Office of Institutional Research [Academic Program Inventory](#) reports. Using these data, we calculated several variables, including Five Year Average Semester Enrollment, % Enrollment Change, Average Annual Graduates, Graduate Rate, and Five Year Total Graduates. See the file AMP [BCC Enrollment and CUNY Peers](#) for all the data in this regards, sorted in several ways as described by the tabs. Note that BCC degree programs are on the spreadsheet in light blue for ease of comparison. Sheet #2 on the spreadsheet organizes the programs by CIP Code ([Classification of Instructional Programs](#)). The CIP code reflects a taxonomy of degree programs used by the federal government, with similar programs getting grouped together under the same code. Sorting programs using CIP code helps ensure that programs being compared are truly similar. This is helpful in cases where similar programs have different names. See, for example, CIP code 52.0401, in which programs vary from being called "Office Administration and Technology" at BCC to "Administrative Assistant" at LaGuardia.

In the analysis already, we have engaged in comparisons of computer science programs and of accounting programs across CUNY—as well as other more limited comparisons. Department chairs and program coordinators/directors are encouraged to review the data for their programs in comparison to peers to uncover possible insights. In cases where other programs seem performing better on certain metrics, it is worth further analysis. For example, the curriculum of the peer program could be reviewed for possible insights as well as possibly reaching out to the department chair of the peer program. The Office of Academic Affairs would be happy to assist in any such analysis, should a department be interested in examining more deeply.

CUNY Peers New Programs Analysis

In this same [file](#) (third tab), CUNY programs created since 2010 are sorted by CIP Code to help identify trends in new program development at CUNY. Several items have already been discussed, including the creation of stand-alone programs in psychology and biology at other CUNY institutions, and the creation of a "Science for the Health Professions" program at BMCC. Additional notable observations include the following:

- An AA in Communications Studies program at BMCC that was created in 2012 and currently enrolls 452 students as of Fall 2017. Note that this may previously have been an option in Liberal Arts at BMCC; more research would be needed to confirm this.
- Hostos has launched an AAS in Game Design starting in 2011 that has healthy enrollment (212 as of Fall 2017). While this indicates student interest in the field, BCC would likely not be in a position to offer a similar program given that Hostos is a nearby peer.
- BMCC and Queensborough have experienced enrollment success with newly launched or restructured Art programs: BMCC has 232 students enrolled in its Art Foundations: Studio Art program; Queensborough has 166 students enrolled in its Art program. This augers well for BCC's newly launched Studio Art option in the AA Liberal Arts and Sciences, and a possible future as a stand-alone degree program.

## CUNY Peers Departmental Structures

To say that no two CUNY community colleges are alike is certainly true in regard to the number and names of academic departments. While there are some common elements, every college has a different approach to this organizational structure in terms of department names, number, and what programs are associated with which department. This diversity likely reflects each college's unique history, organizational culture, and traditions.

The first step in this analysis is simply to list the academic departments at each CUNY community college and compare them in terms of total number (see AMP Academic Department Comparison, tab 1). (Note that because the focus of the AMP is on academic programs the analysis considers only academic departments offering academic programs and/or credit-bearing coursework; Library Departments are excluded.) The number of departments at each community college varies considerably, from Borough of Manhattan Community College (BMCC) and Queensborough with 18, to Guttmann with no departments at all. Using this very simple measure, BCC is approximately in the middle of the pack with 14 departments.

This comparison is limited, though, because the CUNY community colleges vary in size so much, from BMCC with nearly 27,000 enrolled students in Fall 2017 to Guttmann at just over 1000. When using student enrollment as a proxy for institutional "size", BCC has somewhat more departments in comparison to our CUNY peers (only Hostos has more). That is, when you divide the number of students enrolled in Fall 2017 by the number of departments, BCC has 781 students per department; in comparison, LaGuardia has 2422 per student. See Figure 2. While it in not clear whether it is preferable to have a large number of departments relative to enrollment, departmental structures are not resource neutral, so any consideration of adding another department would obviously need careful financial analysis.

Figure 2
Number of Fall 2017 Enrolled Students Per Academic Department
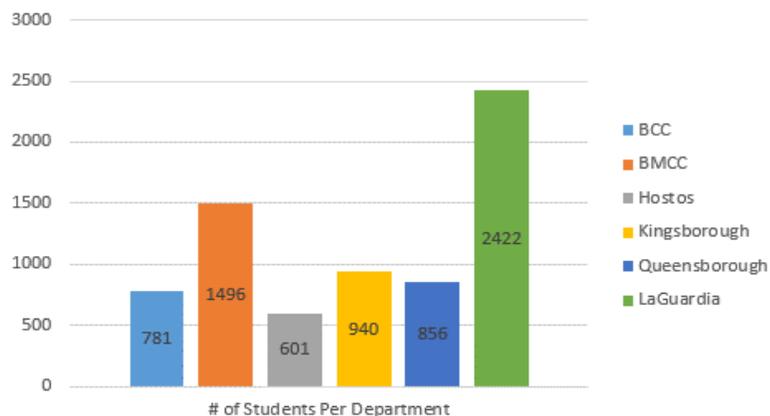
Source: College Web Sites and Catalogs, in addition to CUNY Fall 2017 Total Enrollment Report

The second step in this analysis was an attempt to sort departments across community colleges by academic area. See the second tab of AMP Academic Department Comparison. Eight academic areas/categories were used, partially because they emerged from the commonalities across colleges: Humanities, Social Sciences, Natural Sciences, Math, Business, Health, Nursing/Allied Health, and Education. The most notable contrast across colleges is found in examining the two broadest categories: Humanities and Natural Sciences. These broad academic areas contain clear subcategories that are "stand-alone" departments at some community colleges, but, notably, not at all. Humanities includes English, Art, Communications, and others at some colleges. Natural Sciences sometimes contains Biology, Chemistry, and Physics. Some community colleges use these broad areas as the basis for a department. For example, LaGuardia and Hostos each have a "Humanities" department that is inclusive of a range of disciplines that are separate departments at other colleges (e.g., art, history, languages, and communications). Additionally, BMCC, LaGuardia, and Hostos have only one science department that includes the three traditional natural science disciplines (biology, chemistry, and physics).

There are some consistencies across CUNY community colleges in terms of academic structure: The most consistent is "English", with all colleges having a department of this name. However, even in this case, there are differences when one drills just a little deeper, as some English Departments include remedial reading courses and others do not. "Business" and "Math" are, on the surface, pretty consistent, as all community colleges have a department of this sort. However, when you look a little more closely, significant difference emerge: Most overtly, BMCC's Business Department does not include accountancy, but others do. There are also differences in where computer information systems programs are housed—sometimes in Business Departments and sometimes not. The Math Departments vary as well, with LaGuardia including engineering in the Math Department. Also, some Math Departments include computer science courses/programs; some do not.

This analysis and information is more interesting than actionable, it seems. Perhaps the best it does is to give us some context in which to understand our own structure in contrast to the structure of peers. And, perhaps, this research can serve as a resource if proposals for departmental changes arise or are considered. Note that each cell on the second tab has an embedded web link to bring the user to the relevant department web page. These pages contain department information, including courses, programs, and more. Anyone interested in learning more can review the information on these pages.

CHAPTER IX

FINDINGS, RECOMMENDATIONS, AND NEXT STEPS

In the preceding chapters, we undertook a careful analysis of the following: BCC program alignment with the labor market and labor market trends. BCC program review in the context of enrollment, graduation, and transfer, both in comparison with other BCC programs and with those at peer CUNY institutions. Finally, we reviewed, in significantly less detail, how peer CUNY colleges organize their academic departments in relation to academic disciplines, fields, and programs. Throughout the AMP thus far, we have identified key "findings" from the data and analysis. This final chapter summarizes and reorganizes some of the key findings into four categories:

- BCC Programs with Enrollment Concerns/Opportunities
- Labor Market Alignment Concerns/Opportunities
- Stackable Credentials Opportunities
- New or Restructured Degree Development Opportunities

Note that each category has subcategories. In this final chapter, we also offer recommendations in regard to each finding. For the purpose of clarity and readability, we offer the findings and recommendations in the form of a list and bullets.

1. **BCC Programs with Enrollment Concerns/Opportunities:**
   A. **Low Enrollment/Graduation**
      Finding: Several associate programs have very low enrollment (<20 Fall 2017) and/or very few total graduates over the past five years (<10).
      Recommendation: Department chairs/program coordinators asked to review these programs in consultation with the Office of Academic Affairs (OAA). Major changes may be necessary for these programs.

   B. **Significant Enrollment Loss**
      Finding: Several associate programs have lost more than 25% in total enrollment in the past five years.
      Recommendation: Department chairs/program coordinators asked to review these programs in consultation with OAA. Changes may be appropriate to regain/stabilize enrollment.

   C. **Inactive Programs**
      Finding: Several associate programs and certificates are registered with NYSED but are not and/or have never been active at BCC.
      Recommendation: Department chairs/program coordinators asked to review these programs with their department to determine if they wish to proposed major changes to these programs. If not, these departments should work with OAA and the Curriculum Committee to deregister these programs officially through the governance process.

2. **Labor Market Alignment Concerns/Opportunities:**

   A. **Labor Market Preference for Bachelor's Degrees**

   Finding: The current NYC labor market in many job titles aligned with BCC degrees is showing a strong preference for a bachelor's degree instead of an associate degree (with a few notable exceptions; e.g., radiologic technology). This labor market finding may be the partial cause of the conversion of several AAS programs into AS programs at peer CUNY community colleges in the past ten years.

   Recommendation: Appropriate department chairs/program coordinators to review AAS degree programs to (1) ensure that transfer paths are strong and viable for students, including in AAS programs, (2) ensure that our messaging and marketing is on point in terms of what job is feasible with the degree, and (3) review whether certain AAS programs should be AS programs instead.

   B. **Computer-Related Degree Alignment with Labor Market**

   Finding: Several of BCC's computer-related programs (e.g., AAS Digital Arts, Computer Information Systems, and Computer Science) show robust enrollment and/or employment opportunities in related job titles. While this is a positive finding, the labor market analysis did raise a concern about how well-aligned our BCC computer-related programs are to job titles.

   Recommendation: Department chairs/program coordinators asked to review these programs in consultation with OAA to ensure they are well-aligned to the labor market in terms of skills and nomenclature.

3. **Stackable Credentials Opportunities:**

   A. **Certificate Programs**

   Finding: Certificate programs at BCC, as in CUNY in general, are remarkably under-enrolled in comparison with community colleges nationwide. More research is appropriate to determine opportunities in this area that are well-aligned with local employer needs and that represent a first step for students in earning post-high school credentials.

   Recommendation: Committee of interested parties to review opportunities for new certificate programs aligned with industry.

   B. **Industry Certifications**

   Finding: Noncredit credentials are quite prominent in some industries, most notably in information technology, and can be the key to a student employability. BCC has taken some steps in addressing this need with the embedded industry certification opportunities in the new Certificate and AAS in Cybersecurity and Networking. More can be done, including in the allied health field (e.g., investigating the embedding of CT scan certification into the Nuclear Medicine Technology program as an option for students).

   Recommendation: Committee of interested parties to review opportunities for integrating certifications aligned with industry.

4. **New or Restructured Degree Development Opportunities:**
   A. **Existing Options as Degrees**
   Finding: Several current Liberal Arts and Sciences Options (Biology, Psychology, and Childhood & Early Childhood Education) show sufficient enrollment to possibly justify a "stand alone" degree program. Such programs are more attractive to students, are easier to market, and allow for more departmental ownership.
   Recommendation: Departments, in consultation with OAA, to consider proposing degree programs to replace existing Liberal Arts and Sciences options in the above areas.

   B. **AS in Science**
   Finding: CUNY community colleges have varied ways to offer science curricula, from the current BCC structure (an AS in Liberal Arts and Sciences with options), to "stand alone" degrees in Biology and Chemistry, to an AS in Science degree (BMCC). These alternatives offer precedents and options to consider for the BCC structure.
   Recommendation: BCC science chairs to review the name and structure of the current degree. Consider proposing a renaming of the AS Liberal Arts and Sciences degree, perhaps to an AS in Science. Such a change in name would (1) likely make the degree more attractive to students, (2) reduce confusion with the AA in Liberal Arts and Sciences, and (3) more accurately describe the program's content: it is a science degree with a strong math foundation. Consider the formation of "General" option in the degree, analogous to the General option in the AA LAS program. This option could afford students more flexibility in science course choice in the context of future career and educational plans.

   C. **AS in Health Science**
   Finding: BMCC recently created an AS in Science for the Health Professions. NYC College of Technology is proposing an AS in Health Science. Queensborough has an option in its AS in Biology degree for "Allied Health Transfer". These degrees/option are a way to effectively manage the large numbers of students who intend to pursue an associate degree in nursing and other high-demand allied health programs: Pre-clinical nursing intent students can be admitted into these health science programs instead of the nursing major, thus not giving students unrealistic hopes about their likely future admission into the nursing clinical program. At the same time, these programs create a clear path to allied health programs by accommodating the pre-clinical courses required for admission to nursing, radiologic technology, etc. For those students who do not meet clinical admission requirements for nursing, radiologic technology, etc., these degree programs can educate students about their many options in the health field both at the associate and baccalaureate levels, give students the opportunity to earn an associate degree related to their field of interest, and prepare them for a baccalaureate degree in a health field.
   Recommendation: Investigation of the potential to create an AS in Health Science at BCC through discussion with science/health department chairs and OAA.

   D. **Human Resource Assistant**
   Finding: The AMP labor market "gap" analysis found that jobs falling under this title pay decent salaries, have a favorable growth outlook, and are a good match for associate degree

holders. While the number of jobs available in this Human Resource Assistant category annually are relatively modest (approximately 80 in the five boroughs), this position can be the first step on a career ladder. The next higher category is Human Resource Specialists, which pays quite well and typically has over 600 annual openings. Human Resource Specialist positions generally require a bachelor's degree, so any program targeted for Human Resource Assistant should "stack" well into a bachelor's program. Note that there are no associate degree programs in Human Resource Assistant or similar in CUNY. Recommendation: Committee of interested parties to review opportunities for a way to prepare students for this job title. This may be done in many ways, including but not limited to the following: development of a course or option within an existing degree program, a certification/noncredit credential, or a full new degree program.

E. **Customer Service Representative**
Finding: The AMP labor market "gap" analysis also found the job category of Customer Service Representative to be a promising one for which to develop a clearly aligned educational path. NYS DOL projects employment in the field as "very favorable" and it is characterized as a "significant industry" in New York City with decent median wages. The job market is robust, with over 2000 openings on average annually. A particular niche for BCC could include building on the non-English language abilities of many of our students: there is a high demand for bilingual skills in the customer service job postings. A review of peer CUNY colleges found no associate degree programs that explicitly prepare students for this industry.
Recommendation: Committee of interested parties to review opportunities for a way to prepare students for this job title. This may be done in many ways, including but not limited to the following: development of a course or option within an existing degree program, a certification/noncredit credential, or a full new degree program.

Next Steps

Implementing AMP 1.0
Formation of an AMP Implementation Committee which will, in consultation with appropriate chairs, administrators, and CUNY Central OAA (when relevant), develop an action plan with a timeline based on findings and recommendations. Note that certain items (e.g., BCC Programs with Enrollment Concerns/Opportunities) clearly call for immediate review and action. Other items (e.g., New or Restructured Degree Development Opportunities) call for more research and consultation before action. The action plan would detail the next steps and timeline.

This AMP Implementation Committee would also oversee and monitor the progress toward addressing AMP findings and recommendations. The AMP effort created a data structure and analysis that can be updated annually in order to track progress (and inform possible necessary changes in direction). Additional data could be incorporated into this effort (e.g., reporting on careers/employment of BCC graduates by program). Using these data and other metrics, the AMP Implementation Committee will ensure that the action plan is on track.

Developing AMP 2.0

As noted in the introduction, in the process of developing this Academic Master Plan, decisions had to be made on what to include and what to exclude. This was essential in order to maintain coherence of the AMP document and to move it to completion in a reasonable timeframe. There are many areas a second academic master plan ("AMP 2.0") effort could explore, including but not limited to the following:

- Analysis of course-level enrollment trends in terms of sections offered, cancellations, and density, among other measures.
- Analysis of resource needs on a program level, particularly to ascertain whether adequate material and facilities resources are available for individual programs to succeed. This resource analysis was intended to be part of AMP Subcommittee 4, but was not completed.
- Reviewing and benchmarking the multiple efforts underway at BCC to enrich the student academic experience, including Honors Programs, First Year Program, Learning Communities, and Writing Across the Curriculum. A good start on the research needed for this occurred as part of AMP Subcommittee 2, which investigated academic enrichment programs and more. This research was not included in the AMP 1.0 analysis due to its focus on academic programs, but it could form the foundation for an AMP 2.0 effort focused on this area.

APPENDICES

Appendix A: AMP Timeline

AMP Project Timeline Overview:

Phase:	Description of activity of AMP Committee:	Vice Presidents, Deans, and Chairs (VPDC) Review Timeline:*
0	Launch	November 2017
1	Development of research questions.	December 2017
2	Update on charges to subcommittees for research questions 1, 2, and 3.	February 2018
3	Initial findings for research questions 1, 2, 3.	March 2018
4	Draft findings for research questions 1, 2, 3. Update on charges to subcommittees for research question 4 and conclusion question 5.	April 2018
5	Update on initial findings of AMP effort.	May 2018
6	Final written document.	September 2018

Additional feedback and consultation from Senate, Curriculum Committee, and college community. See below detailed timeline.

Detailed timeline:

Approximate Date:	Item:
November 9, 2017	• AMP Discussion at VPDC meeting
November 30, 2017	• AMP Committee Meeting #1
December 6, 2017	• AMP Memo via Broadcast to full college community
December 7, 2017	• AMP Memo to College Senate
January, 2018, week 1	• Review and finalizing of subcommittee roadmaps • Scheduling AMP Committee meeting.
January, weeks 2/3	• Distribution of subcommittee roadmaps to AMP Committee
January, week 4	• AMP Committee Meeting #2 • Formation of subcommittees for research questions 1, 2, 3. • Subcommittees 1, 2, 3 to meet in last part of AMP Committee meeting.
January, week 4/5	• Subcommittees 1, 2, 3 to gather, review, synthesize data. Identify needs/additional elements to investigate.
January, Week 5	• Curriculum Committee Report/Feedback
February, week 2	• VPDC Report/Feedback
February, week 4	• AMP Committee Meeting #3 • Subcommittees 1, 2, 3 to provide initial findings/draft, questions, etc. on research to full AMP Committee in meeting.
March, week 2	• VPDC Report/Feedback
March, week 2	• Curriculum Committee Report/Feedback
March, week 4	• AMP Committee Meeting #4 • Subcommittees 1 and 2 to complete and submit work. Subcommittee 3 to complete and submit work on part 1. Feedback from full committee. • Subcommittees 4 and 5 launched.
April, week 1	• Subcommittee 3 to complete work on part 2 of question.

April, week 2	•	Curriculum Committee Report/Feedback
April, week 2	•	VPDC Report/Feedback
April, week 4	•	Revisions to reports
May, week 2	•	Curriculum Committee Report/Feedback
May, week 2	•	Senate Report/Feedback
May, week 2	•	VPDC Report/Feedback
June/July/August	•	Completion of AMP data work and analysis. Revisions. Ongoing report writing, synthesizing responses to research questions.
August	•	Department Chairs' Retreat Report/Feedback
September	•	Curriculum Committee Report/Feedback
September, week 2/3	•	VPDC Report/Feedback
September, week 4	• •	AMP Committee Meeting #6 Draft document reviewed; feedback from full committee.
October	• •	Curriculum Committee Report/Feedback Senate Report/Feedback
November	•	Distribution of AMP to College Community

Appendix B: Subcommittee Roadmaps

Subcommittee #1: Labor Market/Business Trends

Research Question #1:
What are major labor market/business trends in the metro area that should inform our academic program offerings?

Elements to consider:
   a. Local employment trends and projections in terms of job availability, salaries, mobility, portability, "job quality", location, long-term industry prospects, "fit" in a career/educational pathway, etc.
   b. Review current programs in the context of employment trends and projections.
   c. Translating these trends into possible new degree programs, revisions of existing degree programs.
   d. How have other CUNYs and nonCUNY CCs responded to local economic conditions (e.g., "Best practices").
   e. Do the employment trends favor industry certification, certificates, associate degrees, bachelor's degrees?
   f. Additional?

Initial Sources:
   - NYS Department of Labor: https://www.labor.ny.gov/stats/nyc/
   - The Center for Urban Research: https://www.gc.cuny.edu/lmis/our_work
   - US Department of Labor: https://www.dol.gov/general/topic/statistics

Likely Additional Sources:
   - Industry and Trade Associations, Chambers of Commerce, Partnership for NYC, NYC SBS, NYC EDC, and Think Tanks such as the Center for an Urban Future, Manhattan Institute, Community College Research Center at Columbia, etc.
   - Academic research and popular journals/articles.
   - CUNY Chancellor's reports showing new programs/program changes.
   - Websites of nonCUNY competitor colleges (e.g., Monroe, Mercy).

Subcommittee #2: Educational Trends

Research question #2:
What are the major educational trends at BCC, in CUNY, and elsewhere that should inform our academic program offerings?

Elements to consider:
   a. Academic programs trends in CUNY and beyond (what new programs have been developed at community colleges across the country? In CUNY? Enrollment trends?)
   b. Liberal arts skills and goals, including elements such as critical thinking and informed citizenship.
   c. BCC ASAP expansion/enrollment and related program implications.
   d. Stackable credentials.
   e. Open Educational Resources
   f. Online courses/degrees
   g. Additional?

Initial Sources:
- CUNY Enrollment and graduates by program: http://www2.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/oira/institutional/data/current-student-data-book-by-subject/ACPG_0007_APIReportbyCollegeandAcademicProgramFall2016.pdf
- Essential liberal arts learning outcomes: https://www.aacu.org/leap/essential-learning-outcomes
- BCC Strategic Plan http://www.bcc.cuny.edu/Strategic-Plan/

Likely Additional Sources:
- Academic research and popular journals/articles.
- CUNY OAA (would schedule an interview asking them for feedback/input)
- Other academic master plans. See https://www.dropbox.com/sh/qv6r54gx0zhjq05/AACCbmYDjbqXv5vtZ3nc2gHka?dl=0

Subcommittee #3: Academic Program Review

Research question #3:
Evaluate our current academic program offerings using key indicators of viability (e.g., enrollment, graduation, graduation outcomes, transfer, cost, etc.) and in the context of the findings from research questions #1 and #2.

Elements to consider:
Part 1: Program viability: Which programs are excelling, and which have challenges?
    a. Enrollment trends over past ten years
    b. Graduation trends over past ten years
    c. Cumulative GPA trends over the past ten years by program.
    d. Review of graduation outcomes for programs, both in terms of employment and transfer.
    e. Program accreditation.
    f. Review of program costs in terms of labor, equipment, facilities, etc. in context of enrollment (student credit hours) and graduates. (Inputs vs. outputs.)
    g. Identify and review impediments to academic program success.
    h. Identify and review supporting factors for academic program success.
    i. Additional?

Part 2: Context of findings from #1 and #2
    a. Evaluate program offerings in context of the answers to questions #1 and #2, in addition to part 1.
    b. Additional?

Initial Sources:
- BCC IR Data Reports: http://www.bcc.cuny.edu/Institutional-Research/?p=ir-Data-Reports
- BCC IR Semester Profiles: http://www.bcc.cuny.edu/Institutional-Research/?p=ir-Semester-Profiles
- CUNY Enrollment and graduates by program: http://www2.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/oira/institutional/data/current-student-data-book-by-subject/ACPG_0007_APIReportbyCollegeandAcademicProgramFall2016.pdf
- Undeclared major option memo: https://www.dropbox.com/s/c6qwrylcv6tn44b/Policy%20on%20the%20Declaration%20of%20Majors%20final%2011.27.17.pdf?dl=0

Likely Additional Sources:
- Requests to BCC IR for additional data (e.g., results of graduate surveys).
- Possible interviews with department chairs/program coordinators of programs that are thriving.
- Other Academic Master Plans. See https://www.dropbox.com/sh/qv6r54gx0zhjq05/AACCbmYDjbqXv5vtZ3nc2gHka?dl=0

Subcommittee #4: Academic Structures and Resources

Research question #4:
In the context of research questions 1, 2, and 3, how well do our current academic structures (e.g., departments, policies, practices, etc.) and resources (e.g., personnel, physical space, equipment, etc.) serve to support and grow our current academic programs and the development of new academic programs?

Elements to consider:
   a. For select current programs:
      - benchmark against CUNY peers in regard to academic structure.
      - review resource needs as appropriate

   b. For select potential programs:
      - benchmark against CUNY peers in regard to academic structure.
      - review resource needs as appropriate

   c. Review of the new program development process, including benchmarking against peer community colleges processes.

Initial Sources:

- BCC Catalog: http://www.bcc.cuny.edu/College-Catalog/
- Websites and college catalogs for CUNY peers.
- Undeclared major option memo:
  https://www.dropbox.com/s/c6qwrylcv6tn44b/Policy%20on%20the%20Declaration%20of%20Majors%20final%2011.27.17.pdf?dl=0

Likely Additional Sources:

- Review of relevant budgets and technology master plan.
- Interviews with relevant department chairs/faculty.
- Best practices on academic programs, structures, etc. in the literature.

Subcommittee #5: Conclusions and Recommendations

Question #5:
Conclusions: Provide recommendations for academic programs, academic structure, and resources consistent with commitment to institutional mission.

Elements to consider:
   a. What existing academic programs show a need for additional review and possible action? Why?
   b. What existing academic structures show a need for additional review and possible action? Why?
   c. What academic programs should the college consider developing in the future? Why?
   d. What resources should be deployed/prioritized for the purpose of existing or future academic programs? Why?
   e. What ongoing process should be created to facilitate regular review of academic programs from an institutional perspective? For example, should there be an annual review of program data by senior leadership to inform decision making? If so, what elements should be included, who would be responsible for this process, etc.?

Initial Resources:
   • Responses to research questions 1, 2, 3, and 4.

Likely Additional Resources:
   • Interviews with relevant department chairs/faculty.
   • Best practices on academic programs, structures, etc. in the literature.