ARTICULATION AGREEMENT FORM

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: Borough of Manhattan Community College (BMCC)
Department: Mathematics
Program: Data Science
Degree: Associate in Science (A.S.)

Receiving College: New York City College of Technology (City Tech)
Department: Computer Systems Technology
Program: Data Science
Degree: Bachelor of Science

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

- Completion of the A.S. degree in Data Science and a minimum GPA of **2.50**
- Grade of C or better in freshman composition, its equivalent, or a higher-level English course
- Successful completion of a 3-credit college-level math course

Total transfer credits granted toward the baccalaureate degree: **60**

Total additional credits required at the senior college to complete baccalaureate degree: **60-65**

Total credits required to complete the baccalaureate degree: **120-125**

C. TRANSFER CREDITS AWARDED

Borough of Manhattan Community College (BMCC) graduates who complete the Associate in Science (A.S.) degree in Data Science will receive **60** credits toward the Bachelor of Science degree (B.S) in Data Science at New York City College of Technology (NYCCT).

BMCC A.S. in Data Science General Education Degree Requirements

PATHWAYS COMMON CORE REQUIREMENTS		
Required Common Core		
ENG 101: English Composition ENG 201: Introduction to Literature		6
Mathematical and Quantitative Reasoning MAT 206: Precalculus or MAT 206.5 Intermediate Algebra and Precalculus		4
Life and Physical Sciences		3
Flexible Core		
Creative Expression:		3
Individual and Society		3
US Experience in its Diversity		3
World Cultures and Global Issues		3
Scientific World CSC 103: Introduction to Data Analysis CSC 111: Introduction to Programming		7
Total Common Core		32
PROGRAM SPECIFIC REQUIREMENTS		
MAT 200	Introduction to Discrete Mathematics	4
MAT 301	Analytical Geometry and Calculus I	4
MAT 302	Analytical Geometry and Calculus II	4
MAT 409	Probability and Statistics for Data Science	4
MAT 415	Linear Algebra for Data Science	3
Program Electives -Select 9 Credits from the following:[1]		
MAT 420: Introduction to Machine Learning CSC 203*: Python Programming CSC 211*: Advanced Programming Techniques CIS 395*: Database Systems I CIS 490: Introduction to Data Science		9
General Electives These credits will be satisfied by the extra credits take for MAT 206.5/206 and CSC 111 in the Common Core.		0
Total Curriculum Requirements		28
Total program Requirements		60

*Students are advised to take CSC203, CSC 211and/or CIS 395 to reduce the number of credits needed to graduate at City Tech

NYCCT agrees to accept BMCC courses completed as A.S. in Data Science core requirements as the equivalent to NYCCT courses offered as core courses for the B.S. in Data Science program based on the following table:

BMCC Pathway Required Common Core:	**BMCC Credits**	**NYCCT B.S. in Data Science Common Core**	**NYCCT Credits**
ENG 101	3	ENG 1101	3
ENG 201	3	ENG 1121	3
Mathematical and Quantitative Reasoning - MAT 206	4	Scientific World – MAT 1375 Precalculus	4
Life and Physical Sciences	3	Life and Physical Sciences	3
Creative Expression	3	Creative Expression	3
Individual and Society	3	Individual and Society	3
US Experience in its Diversity	3	US Experience in its Diversity	3
World Cultures and Global Issues	3	World Cultures and Global Issues	3
Scientific World – CSC 103	3	CST 1100	3
Scientific World – CSC 111	4	Scientific World Elective Credit	3 1
Total	32	*Total*	**32**

BMCC Required Core:	**BMCC Credits**	**NYCCT B.S. in Data Science Core**	**NYCCT Credits**
MAT 200 Introduction to Discrete Mathematics	4	Mathematical and Quantitative Reasoning – Elective Course	4
MAT 301 Analytical Geometry and Calculus I	4	MAT 1475 Calculus I	4
MAT 302 Analytical Geometry and Calculus II	4	MAT 1575 Calculus II	4
MAT 409 Probability and Statistics for Data Science	4	MAT 2572 Probability and Mathematical Statistics I	4
MAT 415 Linear Algebra for Data Science	3	MAT 2580 Introduction to Linear Algebra	3
Total	19	*Total*	**19**

Three elective courses out of the following five courses.

BMCC Required Core: (Elective)	**BMCC Credits**	**NYCCT B.S. in Data Science Core**	**NYCCT Credits**
MAT 420 Introduction to Machine Learning	3	Additional Liberal Art Course I	3
CSC 203 Python Programming	3	CST 1101	3
CSC 211 Advanced Programming Techniques	3	CST 1201	3
CIS 395 Database Systems I	3	CST 1204	3
CIS 490 Introduction to Data Science	3	Elective Credit	3
Total	9	*Total*	**9**
		Total Transferred credits	**60**

D. SENIOR COLLEGE UPPER DIVISION COURSES REMAINING FOR BACCALAUREATE DEGREE

The courses students will be required to take at NYCCT after completing A.S. in Data Science in BMCC to earn the B.S. in Data Science in NYCCT:

GENERAL EDUCATION CORE:		
College Option		
Public Speaking	COM 1330 or higher (if public speaking not taken, otherwise any liberal arts course)	3
Interdisciplinary Course	Any approved interdisciplinary (ID) course (Writing Intensive, WI, course recommended)	3
Program General Education Requirements		
MAT 2440	Discrete Structures and Algorithms I	3
	Total Flexible Core, College Option, and Program General Education Requirements	**9**

DISCIPLINE REQUIREMENTS		
Computer Systems Fundamentals		
CST 2312	Information and Data Management I	3
CST 2309	Web Programming	3
CST 2402	Introduction to Data Science	3
CST 2412	Data Security, Privacy, Ethics	3
		12
0 to 2 courses that were not completed at BMCC at AS (0-6 credits)		
CST 1101	Problem Solving with Computer Programming (If CSC 203 was not taken as the program elective)	3
CST 1201	Programming Fundamentals (If CSC 211 was not taken as the program elective)	3
CST 1204	Database Fundamentals (If CIS 395 was not taken as the program elective)	3
	Subtotal	**0-6**
Data Science Core		
CST 3502	Data Mining	3
CST 3512	Information and Data Management II	3
CST 3513	OO Programming in Java	3
CST 3602	Data Visualization	3
CST 3650	Data Structures	3
CST 4702	Machine Learning Fundamentals (WI)	3
CST 4714 or CST 3624	Database Administration Introduction to Non-Relational (NoSQL) Technologies	3
CST 4802	Information Retrieval	3

CST 4812	Natural Language Processing	3
CST 4900	Internship (WI)	3
		30
Two Electives from the following [4] (6-8 credits)		
BUS 2339	Financial Management	3
BUS 2341	Financial Forecasting	3
BMET 4741	Fundamental Healthcare Data Analytics	3
BMET 4842	Advanced Healthcare Data Analytics	3
BIO 3450	Biomedical Data Analytics I	4
BIO 4450	Biomedical Data Analytics II	4
MAT 3672	Probability and Statistics II	3
MAT 4672	Computational Statistics with Applications	4
CET 4925	Internet of Things	3
CET 4973	Introduction to Artificial Intelligence	3
PHYS 3600	Machine Learning for Physics Astronomy	3
	Subtotal	**6-8**
	Elective credits to reach 60 credits	**0-3**
	Total	**60-65**

Total Credits to be Completed at NYCCT	**60-65**
Total Credits transferred from BMCC	**60**
Total Credits to earn a Bachelor degree	**120-125**

[4] If not covered by BMCC Computer Science program elective

Writing Intensive Requirement
Students at New York City College of Technology must complete two courses designated WI for the baccalaureate level, one from liberal arts and one from the major.

DEGREE MAP for the BMCC A.S. in Data Science

BMCC students are advised to complete CSC203, CSC 211 and CIS 395 for a seamless transfer to NYCCT.

Semester 1		**Semester 3**	
Course	**Credits**	**Course**	**Credits**
MAT 206.5 Intermediate Algebra & Precalculus	4	MAT 301 Calculus – 4 credits	4
ENG 101 English Composition	3	ENG 201 Introduction to Literature	3
CSC 103- Introduction to Data Analytics	3	CSC 111 Introduction to Programming	4
XXX xxx Individual and Society	3	MAT 200 Introduction to Discrete Mathematics	4
Total	**13**	***Total***	**15**
Semester 2		**Semester 4**	
Course	**Credits**	**Course**	**Credits**
MAT 302 Analytic Geometry and Calculus II	4	CSC 203 Python Programming Data Science	3
MAT 409 Probability and Statistics for Data Science	4	CIS 395 Database Systems I	3
MAT 415 Linear Algebra for Data Science	3	XXX xxx Life and Physical Science	3
CSC 211 Advanced Programming Techniques	3	XXX xxx U.S. Experience in Its Diversity	3
SPE 100 Fundamentals of Public Speaking	3	XXX xxx World Cultures and Global Issues	3
Total	**17**	***Total***	**15**

DEGREE MAP for the NYCCT BS in Data Science

This NYCCT Degree Map is applicable to those students who chose CSC203, CSC 211and CIS 395 as their electives in BMCC. If the set of the electives ompleted at BMCC is different, there will be changes to the set of courses listed in this NYCCT Degree Map.

Semester 1		**Semester 3**	
Course	**Credits**	**Course**	**Credits**
CST 2312	3	CST 3502	3
CST 2309	3	CST 3512	3
CST 2402	3	CST 2412	3
CST 3513	3	CST 3650	3
COM 1330 or higher	3	Any approved ID course	3
Total	**15**	***Total***	**15**
Semester 2		**Semester 4**	
Course	**Credits**	**Course**	**Credits**
CST 3602	3	CST 4802	3
CST 4702	3	CST 4812	3
CST 4714	3	Data Science Elective I	3
Data Science Elective I	3	CST 4900	3
MAT 2440	3	Any elective to reach 60 credits	3
Total	**15**	***Total***	**15**

E. ARTICULATION AGREEMENT FOLLOW-UP PROCEDURES

1. *Procedures for reviewing, updating, modifying or terminating agreement:*
   When either of the degree programs involved in this agreement undergoes a change, the agreement will be reviewed and revised accordingly by representative from each institution's respective departments or programs, selected by their Chairpersons and/or program directors.

2. *Procedures for evaluating agreement (i.e., tracking the number of students who transfer under the articulation agreement and their success):*
   Each year, NYCCT will provide BMCC with the following information: a) the number of BMCC graduates who applied to the program; b) the number of BMCC students who were accepted into the program; c) the number of BMCC students who enrolled; and d) the aggregate GPA of these enrolled students at NYCCT.

3. *Sending and receiving college procedures for publicizing agreement (e.g., college catalogs, transfer advisers, websites, etc.):*
   - This articulation agreement will be publicized on the BMCC website and on the NYCCT website.
   - Transfer advisors at BMCC will promote this agreement with eligible students.

Effective Date: Spring 2025