THE CITY UNIVERSITY OF NEW YORK
ARTICULATION AGREEMENT

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: **Bronx Community College of the City University of New York**
Department: Mathematics and Computer Science

Program: Computer Science

Degree: Associate in Science

Receiving College: **Baruch College of the City University of New York**

Department: Mathematics

Program: Computer Science

Degree: Bachelor of Science

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

Students must go to the CUNY.edu and complete a transfer application. Application Priority Deadlines are as follows:
Spring Admissions: September 15
Fall Admissions: February 1

Admission to the program is very competitive. Standards include the following:

- Students must earn a combined GPA of 3.5 in Calculus I and II (MTH 31 and 32).
- Students must earn a minimum grade of B in Programming I and II (CSI 31 and 32).

Students may connect with the BCC Office of Transfer Services for assistance with the CUNY transfer application.

Associate in Science Degree from Bronx Community College.

Bronx Community College graduates with the Associate Degree in Computer Science will receive 60 credits toward the Bachelor of Science in Computer Science at Baruch College. In addition, they will be deemed to have met all lower level, Pathways general education requirements. Determination of the Liberal Arts credits required for the baccalaureate degree in accordance with New York State Education Department requirements will be made by Baruch College

Total transfer credits granted toward the baccalaureate degree: 60

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

C. COURSE TO COURSE EQUIVALENCIES AND TRANSFER CREDIT AWARDED

CUNY Pathways General Education Requirements	
Required Common Core	**Credits**
A. **English Composition** (2 courses) B. **Mathematical and Quantitative Reasoning** (1 course) MTH 31 Calculus and Analytic Geometry I* C. **Life and Physical Sciences** (1 course) SCIENCE I BIO 11 General Biology I, OR CHM 11 General College Chemistry I, OR PHY 11 College Physics I, OR PHY 31 Physics I *Students interested in the Concentration in Biology at Baruch are encouraged to complete BIO 11* *Students interested in the Concentration in Physics at Baruch are encouraged to complete PHY 11*	14
Flexible Common Core	**Credits**
A. **World Cultures and Global Issues** (1 course) B. **U.S. Experience in Its Diversity** (1 course) *Students are advised to complete COMM 20 to improve transfer credit applicability to Baruch.* C. **Creative Expression** (1 course) D. **Individual and Society** (1 course) *Students interested in pursuing the Concentration in Psychology at Baruch are advised to complete PSY 11* E. **Scientific World** (2 courses) CSI 30 Discrete Mathematics I** **Additional course from the Flexible Core E:** SCIENCE II BIO 12 General Biology II, OR CHM 12 General College Chemistry II, OR PHY 12 College Physics II, OR PHY 32 Physics II *Students interested in the Concentration in Biology at Baruch are encouraged to complete BIO 12* *Students interested in the Concentration in Physics at Baruch are encouraged to complete PHY 12*	19
Subtotal	**33**

** Transfers to Baruch as MTH 2610 Calculus I*
***Transfers to Baruch as MTH 2301 Concepts of Discrete Math*

Sending College		**Receiving College Equivalent**		**Credit Granted**
Major Requirements				
[Bronx Community College] **Course & Title**	**Credit**	[Baruch College] **Course & Title**	**Credit**	
MTH 32 Analytic Geometry and Calculus II	4	MTH 3010 Calculus II	4	4
MTH 33 Analytic Geometry and Calculus III	4	MTH 3030 Elements of Calculus III	5	4
CSI 31 Introduction to Computer Programming I	3	MTH 3300 Algorithms, Computers, and Programming I	3	3
CSI 32 Introduction to Computer Programming II	3	MTH 4300 Algorithms, Computers and Programming II	3	3
CSI 35 Discrete Mathematics II	3	MTH 3150 Discrete Math: An Invitation to Computer Science	4	3
CSI 33 Data Structures	3	*Computer Science Elective*	3	3
Free Elective / MTH 28/28.5 / MTH 30 depending on placement.	7	*Elective Credit / MTH 2000*	7	7
			Subtotal	**27**

TOTAL	**60**

D. UPPER DIVISION COURSES

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

ABOUT THE PROGRAM

Students who participate in the Computer Science program will be prepared to do programming in multiple widely used programming languages and will develop the intellectual and attitudinal wherewithal to solve challenging practical and theoretical problems. Upon completion of this program, students will be able:

- To write advanced computer programs in multiple programming languages, including object-oriented code.
- To design efficient algorithms for real-world problems in a variety of fields. This includes incorporating common data structures into the algorithm, modifying existing algorithms, and relying on algorithmic approaches such as divide-and-conquer and dynamic programming.
- To describe and work with the major physical components of computer systems, such processors, memory hierarchies, and I/O systems.
- To understand and interact with major components of operating systems, such as file systems, process scheduling, and basic security mechanisms.
- To discuss and explain the theory of computer science, including topics such as computational complexity and computational models.

COLLEGE OPTION	**Credits**
ENG/CMP 2800 or ENG/CMP 2850 4000-level capstone course **Transfer students with an associate degree are required to completed only 6 college option credits per Pathways policy.*	6*
PRE-WEISSMAN CORE COURSES	
COM 1010 Speech Communication *(Students who have completed COMM 20 at BCC will not have to take this course at Baruch)* Foreign Language I Foreign Language II	6-9
REQUIRED COMPUTER SCIENCE CORE	
MTH 4320 Data Structures and Algorithms MTH 4350 Computer Architecture MTH 4355 Operating Systems MTH 4360 Complexity and Computational Models	16
COMPUTER SCIENCE ELECTIVES OR SELECT CONCENTRATION	
Select three from the following: MTH 4330 Introduction to Machine Learning CIS 3500 Computer Networking CIS 3400 Database Management Systems CIS 3630 Principles of Web Design MTH 4140 Graph Theory CIS 4560 Ethical Hacking MTH 4325 Programming Languages MTH 4150 Combinatorics MTH 4250 Cryptography MTH 4135 Computational Methods in Probability	12
CONCENTRATIONS	

Applied Linguistics:	**Financial Mathematics:**
One of the following: • ENG 3700 Introduction to Linguistics and Language Learning (3 Credits) • ENG 3750 Structure and History of English (3 Credits). ENG 3960 Topics in Languages (3 credits). This course has different types of sections. The concentration requires the CALL-based section. BCC transfer students should complete one computer science elective.	This concentration is focused on computational finance. MTH 4120 Probability (4 credits). MTH 4500 Introductory Financial Mathematics (4 credits). MTH 4115 Numerical Methods for Differential Equations in Finance (4 credits). This course has linear algebra as a pre- or co-requisite. However, MTH3150 would be an alternative prerequisite.

Biology: This concentration focuses on bioinformatics. BIO 2100 Biostatistics (3 credits). BIO XX Bioinformatics (4 credits) – a new course BCC transfer students should complete one computer science elective.	**Psychology:** This concentration includes computational work in one of Baruch's psychology laboratories. PSY 1001 General Psychology (3 credits). This course is part of the Pathways requirements. *Students who completed PSY 11 at BCC will not be required to complete this course.* PSY 3001 Research Methods (4 credits). One of the following four: • PSY 3081 Cognitive Psychology (3 credits). • PSY 3082 Mind, Brain, and Behavior (3 credits). • PSY 3056 Social Psychology (3 credits). • PSY 3067 Motivational Learning (3 credits). Independent study at one of the relevant psychology labs.	
Environmental Science: ENV 1003L Fundamentals of Ecology (3 credits). ENV 1004 Fundamentals of Ecology Research (3 credits). ENV 3016 Environmental Modeling (4 credits). ENV 4900 Topics in Environmental Science (4 credits). Students are encouraged to take the Machine Learning elective (MTH 4330) for the one computer science elective required for BCC transfer students.	**Physics:** This concentration is focused on computational physics. PHY 3004 Physics on computer with Python (4 credits). This course has no significant overlap with the CS Python course MTH 3300 (or CIS 2300). PHY 4004 Statistical physics with applications to finance (4 credits). BCC transfer students should complete one computer science elective.	
	Subtotal	**40-43**
Free Electives		**17-20**
	TOTAL	**60**