THE BOROUGH OF MANHATTAN COMMUNITY COLLEGE OF THE CITY UNIVERSITY OF NEW YORK

ARTICULATION AGREEMENT FORM

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: BMCC
Department: Science
Program: Science
Degree: Associate in Science (A.S.)

Receiving College: New York City College of Technology
Department: Chemistry
Program: Applied Chemistry
Degree: Bachelor of Science (B.S.)

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

(e.g., minimum GPA, audition/portfolio)

- 2.5 overall GPA
- Grade of C or better in a credit-bearing mathematics course worth three or more credits*
- Grade of C or better in freshman composition, its equivalent, or a higher-level English course*

*(Effective 10/1/08, per University policy)

Associate of Science Degree Graduates of CUNY Colleges are exempt from all Required Core, Flexible Core, and Lower Level College Option New York City College of Technology General Education requirements, except STEM waiver courses. To earn a bachelor's degree at New York City College of Technology, CUNY Associate Degree graduates need to:

- complete at minimum 50% of the courses required for the major/minor in residence;
- complete two upper-level College Option interdisciplinary courses;
- complete two writing intensive courses;
- complete elective courses, if needed;.
- complete 60 liberal arts credits for the BS.

Determination of the 60 Liberal Arts credits required for the baccalaureate degree in accordance with New York State Education Department requirements will be made by New York City College of Technology.

Borough of Manhattan Community College graduates with the Associate Degree in Science **who select the electives specified in this articulation agreement** will receive 62 transfer credits, with 58 contributory credits toward the Bachelor of Science, Applied Chemistry at New York City College of Technology. (See Section C below, "Course to Course Equivalencies and Transfer Credit Awarded.") In addition, they will be deemed to have met all Required Core and Flexible Core General Education requirements at New York City College of Technology.

Total transfer credits: **62**
Total contributory transfer credits granted toward the baccalaureate degree: **58**
Total additional credits required at the senior college to complete baccalaureate degree: **62**

C. TRANSFER CREDITS AWARDED

Borough of Manhattan Community College (BMCC) graduates who complete the Associate in Science (A.S.) degree in Science will receive 58 credits toward the Bachelor of Science (B.S) degree in Applied Chemistry at New York City College of Technology.

Pathways Science Curriculum

Common Core	
Required Common Core	
English Composition	6
Mathematical & Quantitative Reasoning [1]	3
Life & Physical Sciences [2]	3
Total Required Common Core	12
Flexible Core	
Creative Expression	6
World Culture & Global Issues	3
U.S. Experience in Its Diversity	3
Individual & Society	3
Scientific World [3]	3
Total Flexible Core	18
Total Common Core	30
Curriculum Requirements	
Choose 1 sequence from the following introductory Science sequences: [4] BIO 210 & BIO 220 – Biology I & II CHE 201 & CHE 202 – College Chemistry I & II PHY 210 & PHY 220 – Physics I & II	8
Choose 16 credits from the following: [5] BIO 210 & BIO 220 – Biology I & II CHE 201 & CHE 202 – College Chemistry I & II PHY 210 & PHY 220 – Physics I & II BIO 230 – Principles of Microbiology BIO 240 - Genetics CHE 120 – Fundamentals of Org. Chemistry CHE 205 – Quantitative Analysis CHE 230 & CHE 240 – Organic Chemistry I & II MAT 301 & MAT 302 – Calculus I & II PHY 240 – Modern Physics SCI 120 – Computer Methods in Science SCI 140 – Introduction to Microprocessors SCI 430 – Scientific Instrumentation	16
Modern Foreign Language	3
General Electives [6]	3
Total Curriculum Credits	30
Total Program Credits	**60**

[1] Students are required to take MAT 206. However, if students can prove math proficiency in MAT 206, MAT 301 can be used to satisfy this requirement. If MAT 301 is taken, 60 credits will transfer to New York City College of Technology.
[2] Students are advised to take PHY 215.
[3] Students are advised to take PHY 225.
[4] Students are advised to take CHE 201 & CHE 202.
[5] Students are advised to take MAT 301 & MAT 302 and CHE 230 & CHE 240.
[6] These credits can be satisfied by taking STEM variants in the Common Core.

D. SUMMARY OF TRANSFER CREDITS FROM BMCC AND CREDITS TO BE COMPLETED AT NYCCT

Applied Chemistry	Total credits for the Baccalaureate	Transfer credits from BMCC	Credits to be Completed at New York City College of Technology
General Education Requirements	**30**	**30**	**0**
College Option	**6**	**0**	**6**
Major Requirements	**79**	**26**	**53**
Electives	**5**	**2**	**3**
Total	**120**	**58**	**62**

E. SENIOR COLLEGE UPPER DIVISION COURSES REMAINING FOR BACCALAUREATE DEGREE[1]

Course and Title	Credits
Additional Required Courses	
BIO 1101 Biology I, if BIO 210 not completed at BMCC	0-4
CHEM 3222 Physical Chemistry: Thermodynamics and Kinetics	4
CHEM 3312 Analytical Chemistry	5
CHEM 3412 Instrumental Methods of Analysis	5
BIO 3601 Biochemistry	4
CHEM 3622 Inorganic Chemistry	4
CHEM 4312 Instrumental Chromatography	4
CHEM 4322 Advanced Spectroscopy	4
CHEM 4901 Internship/Research in Applied Chemistry	3
CHEM 4902 Internship/Research in Applied Chemistry	3
ENG 2575 Technical Writing	3
PHYS 1441 General Physics I: Calculus-based, if PHYS 215 is not completed at BMCC	0-5
PHYS 1442 General Physics II: Calculus-based, if PHYS 225 is not completed at BMCC	0-5
Total Additional Required Courses	*39-53*
College Option Requirement [2]	
COM 1330 or higher public speaking [3]	3
One interdisciplinary liberal arts and sciences course	3
Total College Option	*6*
Free Elective	
Recommended Course- LIB 1201 Research and Documentation in the Information Age	0-3
Science and Mathematics Elective Courses - as required to assure a total of 120 program credits [4]	
BIO 2311/L Anatomy and Physiology I (Lecture and Laboratory)	4
BIO 2312/L Anatomy and Physiology II (Lecture and Laboratory)	4
BIO 3302 Microbiology (Lecture and Laboratory)	4
BIO 3350 Elements of Bioinformatics (Lecture and Laboratory)	4
BIO 3352 Bioinformatics (Lecture and Laboratory)	4
BIO 3354 Computational Genomics	3
BIO 3356 Molecular Modeling in Biology	3
BIO 3524 Nutrition	2
BIO 3526 Pathophysiology	3
BIO 3620/L Molecular and Cell Biology (Lecture and Laboratory)	4
CHEM 2411 Special Topics	3

Science and Mathematics Elective Courses continued	
CHEM 4822 Medicinal Chemistry	3
CST 2403 Introductory C++ Programming Language Part I	3
CST 3503 C++ Programming Part II	3
MAT 2071 Introduction to Proofs and Logic	4
MAT 2440 Discrete Structures and Algorithms I	3
MAT 2540 Discrete Structures and Algorithms II	3
MAT 2572 Probability and Mathematical Statistics I	4
MAT 2580 Introduction to Linear Algebra	3
MAT 2588 The Mathematics of Finance	3
MAT 2630 Applied Mathematics Technology-Numerical Analysis	3
MAT 2675 Calculus III	4
MAT 2680 Differential Equations	3
MAT 3021 Number Theory	4
MAT 3050 Geometry I	4
MAT 3075 Introduction to Real Analysis	4
MAT 3080 Modern Algebra	4
MAT 3672 Probability and Mathematical Statistics II	4
MAT 3770 Mathematical and Modeling I- Optimization	3
MAT 3772 Stochastic Models	3
MAT 3777 Applied Mathematics: Applications of the Wave Equations	3
MAT 3787 Applied Mathematics- Finite Fields	3
MAT 3788 Applications of the Heart Equation for Financial Mathematics	3
MAT 3880 Introduction to Partial Differential Equations using Mathematical Models in Biology	3
MAT 4030 History of Mathematics	3
MAT 4050 Geometry II	3
MAT 4672 Computational Statistics with Applications	3
MAT4788 Financial Risk Modeling	3
MAT 4872 Probability and Mathematical Statistics III	4
MAT 4880 Mathematical Modeling II	3
PHYS 2601/L Introduction to Research (Lecture and Laboratory)	3
PHYS 2603/L Physical Principles of Medical Imaging	3
PHYS 2605 Introduction to Laser Physics and Photonics	4
PHYS 2607 Introduction to Quantum Mechanics	3
PHYS 2609 Introduction to Quantum Computing	4
Total Elective Credits	*1-15*
Total credits to be taken at NYCCT	**62**
Total credits transferred from BMCC	**58**
Total credits required for NYCCT Bachelors of Applied Science	**120**

[1] In addition to requirements of the AS degree, City Tech bachelor's degree students are required to take one Writing Intensive (WI) course in the Major and one WI course in the liberal arts and sciences. **All graduates must also satisfy CUNY Pathways requirements.**

[2] Complete lists of liberal arts and sciences courses and advanced liberal arts and sciences courses, as well as semester-specific lists of interdisciplinary courses, are available online at the City Tech Pathways website.

[3] Students who have already met the COM requirement may choose any other upper level liberal arts science in its place.

[4] The number of free elective credits will vary depending upon the program-specific courses taken in satisfaction of Common Core requirements. Some of these elective courses have pre- and/or co-requisite courses that may be taken as flexible core or college option electives.

F. 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 faculty from each institution's respective departments, 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 semester New York City College of Technology will BMCC with the following information: a) the number of BMCC students 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.

3. Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisers, Websites, etc.:

This articulation agreement will be publicized on BMCC's website, and the New York City College of Technology website. Transfer advisors at BMCC will promote this agreement with eligible students.

G. Advisor Recommendations

BMCC students who plan to transfer into the Applied Chemistry degree program at New York City College of Technology are advised to choose the listed of Program Requirements indicated in this document in order to satisfy the requirements for the A.S. degree in Science at BMCC and to ensure that the maximum number of credits are transferred to satisfy the Applied Chemistry program requirements at New York City College of Technology. Refer to the college website for a list of the general requirements for the A.S. degree.

Effective Date: Fall 2016