

## ARTICULATION AGREEMENT FORM

### A. SENDING AND RECEIVING INSTITUTIONS

Sending College: Borough of Manhattan Community College, CUNY  
Department: Science  
Program: Science  
Degree: Associate of Science (A.S.)

Receiving College: John Jay College of Criminal Justice, CUNY  
Department: Sciences  
Program: Toxicology  
Degree: Bachelor of Science (B.S.)



### B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

- A.S. Degree with a minimum 2.5 GPA in all math and science coursework and a minimum 2.0 overall GPA
- Grade of C+ or better in all Science course(s)
- Grade of C or better in freshman English composition, its equivalent, or a higher-level English course
- Passing grade in a minimum 3-credit college-level, credit-bearing mathematics course

Total transfer credits granted toward the baccalaureate degree: 60

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

Total credits required for the Toxicology Program: 120

### C. TRANSFER CREDITS AWARDED

Borough of Manhattan Community College (BMCC) graduates who complete the Associate in Sciences degree (A.S.), in Science will receive 60 credits toward the Bachelor of Science (B.S.) degree in Toxicology at John Jay College of Criminal Justice (JJC).

<i>Common Core</i>	
<b>Required Common Core</b>	
English Composition	6
Mathematical & Quantitative Reasoning <sup>1</sup>	3
Life & Physical Sciences <sup>2</sup>	3
<i>Total Required Common Core</i>	12
<b>Flexible Core<sup>3</sup></b>	
Creative Expression	6
World Culture & Global Issues	3
U.S. Experience in Its Diversity	3
Individual & Society	3
Scientific World <sup>4</sup>	3
<i>Total Flexible Core</i>	18
<i>Total Common Core</i>	30
<b>Curriculum Requirements</b>	
Choose 1 sequence from the following introductory science sequences: 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: 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 <sup>5</sup>	3
<i>Total Curriculum Credits</i>	30
<i>Total Program Credits</i>	60

<sup>1</sup> Students are required to take MAT 206 (Pre-Calculus)

<sup>2</sup> Students are required to take BIO 210, CHE 201, PHY 210 or PHY 215.

<sup>3</sup> No more than two courses in any discipline or interdisciplinary field can be used to satisfy Flexible Core requirements.

<sup>4</sup> Students are required to take BIO 220, CHE 202, PHY 220 or PHY 225.

<sup>5</sup> These credits can be satisfied by taking STEM variants in the Common Core.

\*Please see Advisor Recommended (Section D) for courses that must be completed at BMCC in order to complete the Requirements for the Toxicology B.S. in two additional years.

#### D. ADVISOR RECOMMENDED SECTION

Courses that must be completed at BMCC in order to complete the Requirements for the Toxicology B.S. at John Jay in two additional years.

<b>Course Title and Number</b>
<i>Mathematical and Quantitative Reasoning</i>
Pre-Calculus (MAT 206)
<i>Life and Physical Sciences</i>
Biology 1 (BIO 210)
<i>Scientific World</i>
Biology 2 (BIO 220)
<i>Program Core</i>
College Chemistry 1 (CHE 201)
College Chemistry 2 (CHE 202)
Physics 1 (PHY 210)
Physics 2 (PHY 220)
Organic Chemistry 1 (CHE 230)
Organic Chemistry 2 (CHE 240)
Calculus 1 (MAT 301)

#### E. SUMMARY OF TRANSFER CREDITS FROM BMCC & CREDITS TO BE COMPLETED AT JJC

	<b>Total Number of Credits Needed for Toxicology Program @ JJC</b>	<b>Transfer Credits from BMCC</b>	<b>Credits to be Completed @ JJC</b>
Common Core Requirements	30	30	0
College Option	6	0	6
General Science Core Courses	30*	24	6
Toxicology Courses	18	0	18
Capstone Course	3	0	3
Major Electives	5-7	0	5-7
Free Electives	26-28	6	20-22
<b>Total</b>	<b>120</b>	<b>60</b>	<b>60</b>

\*John Jay Program Requires 40 General Science Credits, however 10 of these credits are used to fulfill the Common Core *Scientific World* and *Life and Physical Sciences* Requirements.

## F. SENIOR COLLEGE COURSES REMAINING FOR BACCALAUREATE DEGREE

Courses students will be required to take at JJC after completing the A.S. in Science at BMCC.

Course Number & Title	Credits
<b>General Education Requirements (from JJC "College Option")</b>	
One 300-level Justice Core course from <i>Struggles for Justice in the U.S.</i> or <i>Justice in Global Perspectives</i>	3
One course from <i>Learning from the Past</i> or <i>Communications</i>	3
Total College Option at JJC	<b>6</b>
<b>General Science Core Foundation</b>	
Statistics (MAT 301)	3
Calculus 1 (MAT 241) (If Not Completed at BMCC)	3
Subtotal	<b>6</b>
<b>Toxicology Core Courses</b>	
Toxicology of Environmental and Industrial Agents (TOX 313)	3
Human Physiology (BIO 355)	3
Biochemistry w/ Lab (CHE 315)	4
Analytical Techniques in Toxicology (TOX 4xx)	3
Analytical and Quantitative Toxicology (Lab) (TOX 4xx)	2
Principles of Pharmacological Toxicology (TOX 4xx)	3
Subtotal	<b>18</b>
<b>Capstone Course - Choose one course from:</b>	
Senior Seminar (TOX 4xx)	3
Research Internship (TOX 402)	3
Subtotal	<b>3</b>
<b>Electives</b>	
<i>Two Electives; One must be chosen from each group (5-7 credits)</i>	
<b>Group 1: Toxicology Courses</b>	
Cellular and Molecular Toxicology (with lab) (TOX 3xx)	4
Principles of Risk Assessment (TOX 3xx)	3
Introduction to Forensic Toxicology (TOX 3xx)	3
Clinical Toxicology (TOX 3xx)	4
<b>Group 2: Biology/Chemistry Electives</b>	
Cell Biology (BIO 205)	3
Genetics (BIO 315)	3
Inorganic Chemistry (CHE 361)	3
Anatomy and Physiology Lab (BIO 356)	2
Microbiology (BIO 211)	2
Biochemistry (BIO 211)	3
Subtotal	<b>5-7</b>
College Option: General Education Requirement	6
Major Requirements to be Completed at John Jay	32-34
Free Electives	20-22
Total credits at John Jay	<b>60</b>

**Effective Date:** Fall 2015