MEMORANDUM OF UNDERSTANDING
HARFORD COMMUNITY COLLEGE & TOWSON UNIVERSITY
April 26, 2018

Molecular Biology, Biochemistry, and Bioinformatics (MB3) – Biochemistry Concentration B.S. Degree

Harford Community College, Bel Air, Maryland, and Towson University, agree to follow the articulation of courses outlined in the articulation (course equivalency) document, for completion of requirements for the Bachelor of Science degree in Molecular Biology, Biochemistry, and Bioinformatics (Attachment A), which is attached to, and incorporated by reference into, this Memorandum of Understanding (MOU). The following principles guide the operation of this MOU, with the requirements for transfer in specific curricula set forth in Attachment A.

1. Towson University will accept a maximum number of 64 credits from Harford Community College as outlined in the Attachment A. The number of transferable credits specific to this program is reflected in Attachment A.

2. Students who have completed the Associate of Science Degree in the Chemistry (non-calculus based physics) program at Harford Community College may transfer into Towson University's Molecular Biology, Biochemistry, and Bioinformatics: Biochemistry concentration program with junior standing provided that the student has completed all courses identified on Attachment A (which is attached to, and incorporated by reference into, this MOU) with a cumulative GPA of 2.00 or higher. Courses completed at Harford Community College with 300 or 400 level Towson University course equivalencies will transfer as lower-level credit but will satisfy course content as indicated.

3. Only courses in which a grade of C (2.00) or better is earned will apply toward the major at Towson University.

4. In accordance with the MHEC transfer policy pertaining to general education requirements, Towson University will accept the completion of Harford Community College's general education requirements (GenEds) and students will be required to complete courses at Towson University to satisfy the remaining ***University Core*** requirements as shown in Attachment A.

5. Towson University recognizes college-level experiential learning gained through previous work, military and/or volunteer service or life experience. Credit for prior learning may also be established through course challenge or standardized credit by examination.

6. Harford Community College students transferring to Towson University will be given every consideration for financial aid and will be eligible to compete for academic scholarships upon entrance to Towson University subject to stated scholarship deadlines.

7. Both Harford Community College and Towson University agree to work together to facilitate the transfer of students from Harford Community College to Towson University to work cooperatively to insure the high quality of the programs at the respective institutions. Transfer of students will be in accordance with policies and procedures of both institutions, as they may be amended from time to time.

8. This MOU will be in effect initially for ten years, beginning ***spring 2018***, with a review every two years by both parties. Any revisions the parties deem necessary must be evidenced in writing and signed by the authorized officials of each institution. The MOU may be terminated by either party for due cause and after adequate notice of not less than six months is given to the other party.

9. Towson University will establish procedures to provide information on the academic progress of Harford Community College students enrolled as part of this MOU.

10. This MOU, when signed, constitutes the entire agreement between the parties and supersedes all prior agreements and understandings between the parties respecting the matter hereof.

HARFORD COMMUNITY COLLEGE AND TOWSON UNIVERSITY

Dr. Steven Thomas
Vice President for
Academic Affairs

Date 5.17.2018

Dr. Timothy Chandler
Provost and Vice-President for
Academic Affairs

Date 6/1/18

HARFORD COMMUNITY COLLEGE – CHEMISTRY (Requiring non-calculus based Physics) A.S. DEGREE
TOWSON UNIVERSITY/ Molecular Biology, Biochemistry and Bioinformatics (MB3) – BIOCHEMISTRY CONCENTRATION B.S. DEGREE

HARFORD COMMUNITY COLLEGE			TOWSON UNIVERSITY			
COURSE #	**COURSE TITLE**	**CRS.**	**TU EQUIVALENCY**	**CORE**	**COMMENTS**	**COURSE ID#**
			TSEM 102 WAIVED	1.	Towson Seminar	
ENG 101	English Composition (GE) (Grade of C or better)	3	ENGL 102	2.	English Composition	2348
MATH 109 or MATH 203 **	Pre-Calculus I (GM) or Calculus I (GM)	4	MATH 119 MATH 274	3.	Mathematics	4381 4408
				4.	Creativity & Creative Development	
GH	Arts & Humanities (GH)	3	Depends on choice.	5.		
GB	Behavioral/Social Science (GB)	3	Depends on choice.	6.	Social & Behavioral Sciences	
CHEM 111	General Chemistry I (GL)	4	CHEM 131/131L	7.	Biological & Physical Science w/Lab	13097/13098
CHEM 112	General Chemistry II A (GL)	4	CHEM 132/ 132L	8.	Biological & Physical Science	13099/13100
				9.	Advanced Writing Seminar	
				10.	Metropolitan Perspectives	
GB*	Behavioral & Social Science (GB)	3	Depends on choice.	11.	The United States as a Nation	
				12.	Global Perspectives	
GH*	Arts & Humanities (GH)	3	Depends on choice.	13.	Diversity & Difference	
				14.	Ethical Issues & Perspectives	
Total CORE in Transfer		**27**				
MATH 203 OR PROG ELECT **	Calculus I (GM) or Program Elective	4	MATH 273 Depends on Choice.			4407
MATH 204 OR MATH216	Calculus II (GM) or Introduction to Statistics (GM)	4	MATH 274 MATH 231			4408 4393
PHYS 101	Introduction to Physics I (GL)	4	PHYS 211			6800
PHYS 102	Introduction to Physics II (GL)	4	PHYS 212			6801
CHEM 207	Organic Chemistry I	4	CHEM T31 (331)		Transfers as lower level credit.	10134
CHEM 208	Organic Chemistry II	4	CHEM T32 (332)		Transfers as lower level credit.	10135
BIO 120***	General Biology I (GL)	4	BIOL 200/200L			13759/13760
BIO 208***	Genetics	4	BIOL T09 (309)		Transfers as lower level credit	11379
PHYS ED ELECT	Physical Education Elective	1	PHEA TLL			10564
Program Requirements at Harford		**33**				
Total Harford Program Requirements		**60**				
Maximum Credits in Transfer		**64**				

64 Credit Maximum. **15** Core Curriculum units must be competed at Towson University: 4. Creativity; 9. Advanced Writing Seminar; 10. Metropolitan Perspectives; 12. Global Perspectives; 14. Ethical Issues

*One GB or GH course must also satisfy Diversity requirement at HCC.

**Students should complete Calculus at HCC. If MATH 109 (Pre-Calculus) is not needed, an additional program elective should be taken. CHEM 204 (Analytical Chemistry) is recommended. CHEM 204 transfers as CHEM 210 (Analytical Chemistry) to TU and will satisfy a required course for the Biochemistry concentration.

**Students should choose BIO 120 and BIO 208 as program electives at HCC to satisfy required courses for the MB3 major at TU.

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CORE REQUIREMENTS TO BE COMPLETED AT TOWSON		**15 UNITS**
CORE 4:	Creativity and Creative Development	**(3 UNITS)**
CORE 9:	Advanced Writing Seminar	**(3 UNITS)**
CORE 10:	Metropolitan Studies	**(3 UNITS)**
CORE 12:	Global Perspectives	**(3 UNITS)**
CORE 14:	Ethical Issues and Perspectives	**(3 UNITS)**

PROGRAM REQUIREMENTS TO BE COMPLETED AT TOWSON		**33-46 UNITS**
REQUIRED COURSES:		**23-31 UNITS**
BIOL 409	MOLECULAR BIOLOGY	**(4 UNITS)**
CHEM 351	BIOCHEMISTRY I	**(3 UNITS)**
MATH 237	ELEMENTARY BIOSTATISTICS	**(4 UNITS)**
MBBB201	PROGRAMMING FOR BIOLOGISTS **OR**	**(4 UNITS)**
COSC 175	GEN COMPUTER SCIENCE	
MBBB 301	INTRO TO BIOINFORMATICS	**(4 UNITS)**
MBBB 493	SEMINAR IN BIOETHICS	**(1 UNIT)**
BIOL200 &	*INTRODUCTION TO CELL BIOLOGY AND GENETICS*	*(3 UNITS)*
BIOL 200L	*INTRODUCTION TO CELL BIOLOGY AND GENETICS LAB*	*(1 UNIT)*
(If BIOL 120 was not taken at HCC as a program elective)		
BIOL 309	*GENETICS*	*(4 UNITS)*
(If BIOL 208 was not taken at HCC as a program elective)		
SELECT ONE OF THE FOLLOWING:		**(3 UNITS)**
MBBB 495	CAPSTONE PROJECT*	
BIOL 491	ELECTIVE IN INDEPENDENT RESEARCH*	
CHEM 491	INTRODUCTION TO RESEARCH IN CHEMISTRY I*	
COSC 495	INDEPENDENT STUDY*	

****COURSES MAY BE REPEATED FOR A TOTAL OF 6 UNITS TOWARD THE MAJOR***

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COURSES FOR BIOCHEMISTRY CONCENTRATION:		**10-15 UNITS**
CHEM 210	ANALYTICAL CHEMISTRY	
(If CHEM 204 was not taken at HCC as a program elective)		*(5 UNITS)*
CHEM 345	PRINCIPLES PHYSICAL CHEMISTRY	**(3 UNITS)**
CHEM 356	BIOCHEMISTRY LAB	**(2 UNITS)**
CHEM 357	BIOCHEMISTRY II **OR**	**(3 UNITS)**
BIOL/CHEM 450	ECOLOGICAL BIOCHEMISTRY	
CHEM 372	PHYSICAL CHEMISTRY LABORATORY	**(2 UNITS)**

Additional Bachelor Degree Requirements

- **A C (2.0) or higher is required in all major and minor courses**
- **A cumulative grade point average (GPA) of 2.0 is required**
- **32 units of the bachelor's degree must be completed at the upper level (courses numbered 300 or above)**

Total Credits to B.S. Degree	**(120-121)**
Harford Biology A.S. Degree	**60**
Completion of Core at TU	**15**
Completion of Major Requirements at TU	**33-46**
Elective Credits at TU	**0-12**