

**MEMORANDUM OF UNDERSTANDING**  
**HARFORD COMMUNITY COLLEGE & TOWSON UNIVERSITY**  
**November 29, 2018**

**CHEMISTRY 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 Chemistry (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 Chemistry (with non-Calculus based physics) program at Harford Community College may transfer into Towson University's Chemistry 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.

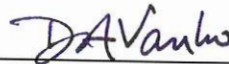
8. This MOU will be in effect initially for ten years, beginning *fall 2018*, with a review every two years by both parties. Any revisions the parties deem necessary must be evidenced in writing and signed by the authorized officials of each institution. The MOU may be terminated by either party for 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 12.17.18



**Dr. David Vanko**  
Interim Provost and Executive Vice-President  
of Academic Affairs

Date 11 Jan 19

**HARFORD COMMUNITY COLLEGE – CHEMISTRY (WITH NON-CALCULUS BASED PHYSICS), ARTS & SCIENCES A.S. DEGREE**  
**TOWSON UNIVERSITY/ CHEMISTRY B.S. DEGREE**

HARFORD COMMUNITY COLLEGE			TOWSON UNIVERSITY		
COURSE #	COURSE TITLE	CR	TU EQUIVALENCY	COMMENTS	COURSE ID #
<b>General Education Applied to Core</b>					
			<i>TSEM 102 (waived)</i>	<i>Towson Seminar Waived</i>	<b>13192</b>
ENG 101	English Composition (GE)	3	ENGL 102		<b>2348</b>
MATH 109	Precalculus Mathematics (GM)	4	MATH 119		<b>4381</b>
GH Elective	Arts/Humanities Elective (GH)**	3	Depends on choice.		
GH Elective	Arts/Humanities Elective (GH)**	3	Depends on choice.		
GB Elective	Behavioral/Social Science Elective (GB)**	3	Depends on choice.		
GB Elective	Behavioral/Social Science Elective (GB)**	3	Depends on choice.		
CHEM 111*	General Chemistry I (GL)	4	CHEM 131 CHEM 131L	Satisfies TU major requirement	<b>13097</b> <b>13098</b>
CHEM 112*	General Chemistry II (GL)	4	CHEM 132 CHEM 132L	Satisfies TU major requirement	<b>13099</b> <b>13100</b>
PHYS 101*	Introductory Physics I (GL)	4	PHYS 211	Satisfies TU major requirement	<b>6800</b>
PHYS 102*	Introductory Physics II (GL)	4	PHYS 212	Satisfies TU major requirement	<b>6801</b>
MATH 203*	Calculus I (GM)	4	MATH 273	Satisfies TU major requirement	<b>4407</b>
<b>Units Applied to TU Core</b>		<b>39</b>			
<b>Program Requirements/Electives</b>					
CHEM 207*	Organic Chemistry I	4	CHEM T31	Lower-level equivalent of CHEM 331. Satisfies TU major requirement.	<b>10134</b>
CHEM 208*	Organic Chemistry II	4	CHEM T32	Lower-level equivalent of CHEM 332. Satisfies TU major requirement.	<b>10135</b>
MATH 204 <b>OR</b> MATH 216*	Calculus II (GM) <b>OR</b> Intro to Statistics (GM)	4	MATH 274 <b>OR</b> MATH 231	Either course satisfies TU major requirement.	<b>4408</b> <b>4393</b>
CHEM 204*	Analytical Chemistry [Program Elective – <i>general elective</i> ]	4	CHEM 210	Satisfies TU major requirement	<b>1049</b>
Program Electives	Program Electives (Choose from list of approved program electives)	4	Depends on choice.		
PE	Physical Education Elective	1	Depends on choice.		
<b>Program Requirements at Harford CC</b>		<b>21</b>			
<b>Total Degree Requirements at Harford CC</b>		<b>60</b>		<b>Core Transfer Package 4: AACR 400</b>	
<b>Maximum Units in Transfer</b>		<b>64</b>			

\*Course satisfies program requirement for both Associate's degree and Bachelor's degree. Refer to next page for details on course selection and degree requirement satisfaction.

\*\*One Arts/Humanities (GH) or Social/Behavioral Science (GB) must be a Diversity course (D).

A grade of "C" or higher is required for all program requirements at HCC.

Note: Students may choose to take additional electives within the 64 allowable transfer credits to satisfy prerequisites for major electives at TU. This is not required; see next page for details.

HARFORD COMMUNITY COLLEGE – CHEMISTRY (WITH NON-CALCULUS BASED PHYSICS), ARTS & SCIENCES A.S. DEGREE  
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### Harford CC Course Selection:

#### GENERAL EDUCATION:

1. Students should use one of their **Arts/Humanities (GH)** or **Social/Behavioral Science (GB)** general education electives to satisfy the 3-credit **diversity course (D)** requirement for Harford CC's graduation requirements.
2. Students who do not complete general education courses as outlined here may be required to complete additional CORE courses at TU.
3. An ethics course is recommended.

#### PROGRAM REQUIREMENT:

- Either MATH 204 (Calculus II) or MATH 216 (Intro to Statistics) is acceptable to satisfy the TU major requirement, but students should consider taking MATH 204 Calculus II (transfers as MATH 274) if they are interested in completing upper-level mathematics electives within the major at TU. MATH 204 will satisfy the MATH 274 prerequisite for most of the TU's major approved MATH electives.

#### PROGRAM ELECTIVES (8 CREDITS):

- The A.S. degree in Chemistry allows for 1-4 credits of *general electives* to satisfy one of the **program electives**. Students should complete CHEM 204 Analytical Chemistry as this *general elective (program elective)*. A course substitution appeal may be required at HCC to take this course. Students should consult with their academic advisors before registering for this course. Students who do not complete CHEM 204 at HCC will be required to complete CHEM 210 at TU. **NOTE:** If CHEM 204 is not offered at HCC during a student's attendance, refer to the note below for alternative course recommendations.
- The following courses are recommended to satisfy the remaining 4 credits of program electives or for students who wish to complete additional credits within the allowable 64 transfer credits\*:
  - a. **BIO 120 General Biology I (GL)** to satisfy prerequisites for Biology electives available in the major at TU.
  - b. **ES 105 Earth Science (GS) and ES 106 Earth Science Laboratory (GL)** to satisfy prerequisites for Geology electives available in the major at TU. A course substitution appeal may be required at HCC to take this course. Students should consult with their academic advisors before registering for this course.
  - c. **MATH 208 Elementary Differential Equations** to satisfy a major elective (Group B) at TU. Students who complete MATH 208 at HCC will be required to take 3 units of electives in the major at TU of which 2 units must be from Group A. Students who do not complete MATH 208 will be required to take 6 units of electives in the major at TU, of which 2 must be from Group A. **NOTE:** MATH 208 will transfer as a lower-level equivalent to MATH 374 and does not count toward the overall upper-level credit requirement.

\*These are only suggestions for students looking to complete additional program requirements while at HCC. HCC and TU do not require students to complete more than the required 60 credits for the AS degree. However, completion of an additional major or prerequisite course at HCC may reduce the total number of units to be completed at TU.

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**DEGREE REQUIREMENTS TO BE COMPLETED AT TU:**

**CORE CURRICULUM TO BE COMPLETED AT TU**

**3 UNITS**

Core 9            Advanced Writing Seminar

3 units

*Additional Core courses may be required if courses were not completed at HCC as indicated on page 1 of this agreement*

**REQUIRED CHEMISTRY COURSES**

**12-17 UNITS**

CHEM 210    Analytical Chemistry    *(if CHEM 204 is not taken at HCC)*

(5 units)

CHEM 323    Inorganic Chemistry

4 units

CHEM 345    Principles Physical Chemistry

3 units

CHEM 351    Biochemistry I

3 units

CHEM 372    Physical Chemistry Laboratory

2 units

**MAJOR ELECTIVES**

**3-6 UNITS**

In addition to the required courses listed above, students electing this major must take a minimum of 6 additional units. At least 2 units must be selected from Elective Group A. The remaining units can be selected from either Elective Group A or Elective Group B. Students should consult the current TU catalog for a list of approved elective options in each group. Elective courses may require additional prerequisites that are not listed in the degree requirements.

*Students who completed MATH 208 Elementary Differential Equations as a program elective at HCC will require only 3 units of electives at TU of which 2 must be chosen from Group A. (Students should not take MATH 374.)*

**GENERAL ELECTIVES**

**34-42 UNITS**

Students may consider filling general elective units through a number of different options, including completing additional electives in the major, adding a minor, or completing electives to explore personal and professional interests.

**CHEMISTRY MAJOR REPEAT POLICY:** A student may repeat no more than three courses, including multiple attempts at the same course, required for the Chemistry major or minor. This includes all foundation courses, as well as required courses and electives for the major and minor. Students exceeding this limit may not be permitted to register for additional Chemistry courses.

**NOTE:** This policy applies to TU coursework only. Students will not be penalized for repeating major courses prior to attending TU; they should refer to the Harford CC catalog for its repeat policy.

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**TOTAL UNITS TO B.S. DEGREE** **120 UNITS**

Harford CC Chemistry (w/ Non-Calculus Based Physics) A.S. Degree	60
Completion of Core Curriculum at TU	3
Chemistry Major Requirements at TU	15-23
Electives	34-42

**ADDITIONAL BACHELOR'S 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).*