

2+2 Articulation Agreement for Community College of Baltimore County and Towson University

Associate's Degree: A.S. in Science, Area of Concentration – Chemistry

Bachelor's Degree: B.S. in Chemistry, Professional Track

Effective Term: Fall 2020

Section 1: Course Completion Plan for CCBC

This section outlines the courses to take for the Community College of Baltimore County (CCBC) general education and program requirements in order to complete both the CCBC and TU degrees within a total of 4 years and 120 credits. The following tables do not include any nontransferable or prerequisite coursework outside of the curriculum.

Table 1: General Education Courses Applied to TU Core Curriculum

CCBC Requirement	CCBC Course to Take	Credits	Towson University Equivalent Course
English Composition	ENGL 101 College Composition I	3	ENGL 102 Writing for a Liberal Education
Mathematics	MATH 251 Calculus I	4	MATH 273 Calculus I
Arts & Humanities	CMNS 101 Fundamentals of Communication	3	COMM 131 Public Speaking
Arts & Humanities	Any arts & humanities course.	3	Equivalency will vary by course.
Social & Behavioral Sciences	Any social & behavioral science course.	3	Equivalency will vary by course.
Social & Behavioral Sciences	Any social & behavioral science course.	3	Equivalency will vary by course.
Biological & Physical Sciences	CHEM 131 General Chemistry I	4	CHEM 131 & CHEM 131L General Chemistry I Lecture & Lab
Biological & Physical Sciences	PHYS 151 General Physics I	4	PHYS 241 General Physics I Calculus-Based
Information Technology	Choose one course: <ul style="list-style-type: none"> ▪ CSIT 101 Technology & Information Systems ▪ CSIT 111 Logic & OO Design 	3	Equivalency varies by course: <ul style="list-style-type: none"> ▪ COSC 111 Information & Technology for Business ▪ COSC 175 General Computer Science
Program Requirement	BIOL 110 Biology I: Molecular & Cell	4	BIOL 200 & BIOL 200L Intro Cell Biology & Genetics Lecture & Lab

Total general education applied to the TU Core Curriculum: 34 credits

Completing the courses above will satisfy the general education program at CCBC. TU will transfer these courses without a course-by-course match to the Core Curriculum requirements. See section 2 for details.

Table 2: Program Requirements and Electives Applied to TU Degree

CCBC Requirement	CCBC Course to Take	Credits	Towson University Equivalent Course
Program Requirement	CHEM 133 General Chemistry II	4	CHEM 132 & CHEM 132L General Chemistry II Lecture & Lab
Program Requirement	CHEM 200 Organic Chemistry I & CHEM 201 Organic Chemistry I Lab	4	CHEM T31 Organic Chemistry I
Program Requirement	CHEM 202 Organic Chemistry II & CHEM 203 Organic Chemistry II Lab	4	CHEM T32 Organic Chemistry II
Program Requirement	PHYS 251 General Physics II	4	PHYS 242 General Physics II Calculus-Based
Program Requirement	MATH 252 Calculus 2	4	MATH 273 Calculus 2
Program Elective	MATH 259 Elementary Differential Equations	3	MATH T74 Differential Equations
Program Elective	Any transferable elective course.	3	Equivalency will vary by course.

Total program requirements applied to the TU degree: 26 credits

Total transferred to TU: 60 credits

Students may transfer a maximum of 64 credits. If students do not adhere to the courses outlined above in Tables 1 and 2, they are not guaranteed completion of the bachelor's degree in 2 years. Refer to section 2 for specific course details and transfer planning information.

Section 2: CCBC Course Selection & Transfer Details

This section explains any specific course selections made in section 1 and provides transfer planning guidance specific to this degree plan. Students must follow the course selections outlined in this document. If students do not complete any or all of the courses outlined in this agreement, they will be required to complete outstanding requirements at TU.

GENERAL EDUCATION

Students must note the following general education requirements and information:

- **Arts & Humanities or Social/Behavioral Sciences:** Take an approved **diversity course** in at least one of these general education areas to satisfy CCBC degree requirements.
- **Total General Education Credits:** Though the CCBC degree requires only 30 credits of general education, TU will recognize the program requirement BIOL 110 as an additional general education course in order to satisfy the Core Curriculum requirements at TU.

The following information explains the transfer of students' general education courses:

- TU will recognize the courses in Table 1 (see section 1) as a completed general education program. Students will receive a core package that satisfies most of the TU Core Curriculum without the need for course-by-course placement in specific Core Curriculum requirements.
- Students will only need to complete two Core Curriculum requirements at TU: Advanced Writing Seminar (Core 9) and Ethical Perspectives (Core 14). If an ethics course is taken as the second Arts & Humanities requirement at CCBC, students will complete a different requirement than Core 14.

DEGREE COMPLETION INFORMATION

Students must note the following information about completing their A.S. degree at CCBC:

- CCBC requires any student who is new to college to take ACDV 101 Academic Development: Transitioning to College. Students must provide an official transcript(s) from an accredited institution to document successful completion of college coursework for the ACDV 101 requirement to be waived. This 1-credit course is designed to be taken in the first semester at CCBC. ACDV 101 transfers to TU as a general elective.
- The CCBC chemistry program is designed for students who are calculus-ready at the start of their enrollment. MATH 251 Calculus I, CHEM 131 General Chemistry I, and PHYS 151 General Physics I each have prerequisites for enrollment which may include completion of additional CCBC courses, passing a placement exam, or department approval. Students should consult the CCBC catalog or contact the Physical Science department for additional course prerequisite information.

PROGRAM ELECTIVE

The 3-credit program elective can be satisfied by any course of a student's choosing as long as it is a transferable course. Students may also fulfill this requirement with a prerequisite math or science course if it is needed.

LOWER-LEVEL EQUIVALENTS OF UPPER-LEVEL COURSES

A course number beginning with T indicates that it is a lower-level equivalent of a 300-level TU course. CHEM T31 and CHEM T32 will satisfy the required courses of CHEM 331 and CHEM 332, and MATH T74 will count as an elective in the major, but these courses will not count toward the TU degree requirement for 32 upper-level units.

Section 3: Degree Requirements to Be Completed at TU

This section outlines the degree requirements for students transferring into the Chemistry major's Professional track, which is intended for students who will pursue graduate studies in chemistry or a closely related field, a career in basic or applied chemistry research, or a career as an industrial chemist. This track is designed to meet the requirements for American Chemical Society (ACS) certification. Refer to section 4 for additional major requirements, recommendations, and university-wide degree requirements.

CORE CURRICULUM REQUIREMENTS: 6 UNITS

Core 9 Advanced Writing Seminar

Core 14 Ethical Perspectives

REQUIRED CHEMISTRY COURSES: 27 UNITS

CHEM 210 Analytical Chemistry (5 units)

CHEM 310 Instrumental Analysis (4 units)

CHEM 323 Inorganic Chemistry (4 units)

CHEM 345 Principles of Physical Chemistry (3 units)

CHEM 346 Theoretical Foundations of Physical Chemistry (3 units)

CHEM 351 Biochemistry I (3 units)

CHEM 372 Physical Chemistry Laboratory (2 units)

CHEM 401 Communication Skills in Chemistry (1 unit)

CHEM 491 Research in Chemistry (2 units)

MAJOR ELECTIVES: 3 UNITS

In addition to the required courses listed above, students electing this major must take a minimum of one additional elective course (3 units) in the CHEM or FRSC subject. Students should consult the current TU catalog for list of approved electives. Elective courses may require additional prerequisites that are not taken as part of the Chemistry major.

GENERAL ELECTIVES: 24 UNITS

Electives can be additional major electives or courses for personal interests. Students may also consider pursuing a double major or minor in a related field.

Section 4: Additional Requirements & Recommendations for TU Degree Completion

ADDITIONAL REQUIREMENTS & RECOMMENDATIONS FOR CHEMISTRY MAJOR:

- Students may not repeat any more than three courses required for the Chemistry major, including multiple attempts of the same course. This applies to any required courses and major electives and only applies to courses taken at TU.
- If students are interested in a double major or minor, they should contact the Department of Chemistry in their first term at TU to discuss program options based on their career goals and needs.
- Students in the professional track need to plan their college careers carefully because not all courses are offered every term. Advanced chemistry electives are offered periodically, subject to adequate enrollment. A long-term schedule for these courses may be obtained from the Department of Chemistry.

BACHELOR'S DEGREE REQUIREMENTS FOR ALL STUDENTS:

- A C (2.0) or higher is required in all major courses and prerequisites.
- 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).

Degree Completion Summary

Total Units Required for B.S. Degree	120 UNITS
CCBC A.S. Degree in Science, Area of Concentration – Chemistry	60
Completion of Core Curriculum at TU	6
Chemistry Major with Professional Track Coursework at TU	30
General Electives Taken at TU	24

Update of Agreement

This agreement was originally published under a Memoranda of Understanding (MOU) between CCBC and TU. The MOU signed October 15, 2018 made this agreement effective for five years. This updated agreement reflects changes in TU's transfer policy. These changes, effective Fall 2020, include the acceptance of ACDV 101 in transfer and the use of a core package to recognize the completed general education program without course-by-course placement in the Core Curriculum. This revised agreement has been approved by both CCBC and TU and remains effective through October 2023.