

2+2 Articulation Agreement for Anne Arundel Community College and Towson University

Associate's Degree: A.S. in Arts & Sciences Transfer, Chemistry Concentration

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

Effective Term: Fall 2019

Section 1: Course Completion Plan for AACC

This section outlines the courses to take for the AACC general education (GER) and program requirements in order to complete both the AACC 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

AACC Requirement	AACC Course to Take	Credits	Towson University Equivalent Course
English Composition	ENG 101 Academic Writing & Research 1	3	ENGL 102 Writing for a Liberal Education
English Composition	ENG 102 Academic Writing & Research 2	3	ENGL TLL English Elective
Mathematics	MAT 191 Calculus & Analytic Geometry 1	4	MATH 273 Calculus I
Arts & Humanities	Any Arts & Humanities course	3	Equivalency varies by course.
Arts & Humanities	Any Arts & Humanities course	3	Equivalency varies by course.
Social & Behavioral Sciences	Any Social & Behavioral Science course	3	Equivalency varies by course.
Social & Behavioral Sciences	Any Social & Behavioral Science course	3	Equivalency varies by course.
Biological & Physical Sciences	CHE 111 General Chemistry 1	4	CHEM 131 & 131L General Chemistry I Lecture & Lab
Biological & Physical Sciences	CHE 112 General Chemistry 2	4	CHEM 132 & 132L General Chemistry II Lecture & Lab
Wellness Requirement	Any Wellness GER course	3	Equivalency varies by course.
Technology Requirement	Any Technology GER course	3-4	Equivalency varies by course.

Total general education applied to the TU Core Curriculum: 36-37 credits

Completing the courses above will satisfy the general education program at AACC. 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

AACC Requirement	AACC Course to Take	Credits	Towson University Equivalent Course
Program Requirement	CHE 213 Organic Chemistry 1	4	CHEM T31 Organic Chemistry I
Program Requirement	CHE 214 Organic Chemistry 2	4	CHEM T32 Organic Chemistry II
Program Requirement	MAT 192 Calculus & Analytic Geometry 2	4	MATH 274 Calculus II
Program Requirement	PHY 211 General Physics 1	4	PHYS 241 General Physics I Calculus-Based
Program Requirement	PHY 212 General Physics 2	4	PHYS 242 General Physics II Calculus-Based
Program Elective	Take any of the following: <ul style="list-style-type: none"> ▪ Prerequisite to MAT 191 (if needed) ▪ Any transferable elective course 	3-4	Equivalency varies by course

Total program requirements applied to the TU degree: 23-24 credits

Total transferred to TU: 60-62 credits

Students may transfer a maximum of 64 credits. If students do not complete all courses listed in section 1, 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: AACC Course Selection 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:** Students may need to select their two Arts & Humanities courses from specific subjects at AACC. Students should consult their AACC catalog or academic advisor for details. Courses taken for this requirement will transfer regardless of subject and will not affect the major requirements at TU.
- **Social & Behavioral Sciences:** Students may need to select their two Social & Behavioral Science courses from specific subjects at AACC. Students should consult their AACC catalog or academic advisor for details. Courses taken for this requirement will transfer regardless of subject and will not affect the major requirements at TU.
- **Diversity Requirement:** Students must select an approved **diversity course** for one of the Arts & Humanities or Social & Behavioral Science requirements in order to satisfy AACC degree requirements.
- **Total Credits:** Though the AACC degree requires only 33 credits of general education, TU will recognize the completion of a GER technology course toward the total of general education credits completed in order to satisfy Core Curriculum requirements at TU (see “Program Electives”).
- **General Education Program:** 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 for the Arts & Humanities requirement at AACC, students will complete a Core Curriculum requirement other than Core 14.

PROGRAM ELECTIVES

Students must take the following courses for their 7 credits of program electives:

- **Technology requirement:** This course for this requirement must be an approved **general education** course in order to meet the requirements for the core package when transferring to TU.
- **Program elective:** The prerequisite course for MAT 191 will satisfy this requirement if students take it (see “Math and Chemistry Prerequisites”). If students do not take any math prerequisite, they may take any transferable course as their elective. Students may consult the Transfer Student Center at TU if they have questions about their elective options.

LOWER-LEVEL EQUIVALENTS OF UPPER-LEVEL COURSES

A course number beginning with T indicates that it is a lower-level equivalent of an upper-level TU course. CHEM T31 and CHEM T32 will satisfy the major requirements for CHEM 331 and 332, but they will not count toward the TU degree requirement for 32 upper-level units.

MATH AND CHEMISTRY PREREQUISITES

The Chemistry program is designed for students who are ready to enroll in calculus and general chemistry in their first term. Students should note the following requirements for enrollment into these courses:

- **MAT 191 Calculus 1:** Enrollment in this course requires an appropriate score on the AACC Mathematics Placement Test on the mathematics portion of the SAT or ACT. If students do not meet this requirement, they may need to complete one or two additional math courses depending on their test scores.
- **CHE 111 General Chemistry 1:** Enrollment in this course requires completion of either MAT 137 College Algebra or MAT 145 Precalculus 1 or eligibility to enroll into MAT 146 Precalculus 2 or higher. If students are eligible to enroll in MAT 191 in their first term, they will also be eligible to enroll in CHE 111.

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: 6 UNITS

In addition to the required courses listed above, students electing this major must take a minimum of two additional courses for a minimum of 6 units. At least one of elective course must be in the CHEM or FRSC subject. Elective courses may require additional prerequisites not included in the chemistry major requirements. A list of approved electives is available in the current TU catalog.

GENERAL ELECTIVES: 19-21 UNITS

The number of elective units required will be determined by the total units transferred from AACC. General electives can be satisfied by additional major electives or courses for personal interests. Students may also consider adding a minor, which may require between 18-30 units depending on the program.

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.
- 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
AACC A.S. Degree in Arts & Sciences – Chemistry Concentration	60-62
Completion of Core Curriculum at TU	6
Major in Chemistry – Professional Track at TU	33
General Electives Taken at TU	19-21