

CHEMISTRY AREA OF CONCENTRATION WITHIN STEM A.S. (TRANSFER)

Program website ([https://www.frederick.edu/programs/science,-technology,-engineering,-and-math-\(stem\)/chemistry.aspx](https://www.frederick.edu/programs/science,-technology,-engineering,-and-math-(stem)/chemistry.aspx))

Program Description

Provides a variety of science and math courses for students pursuing a course of study in chemistry. Students planning to transfer to a four-year college should check the requirements of that institution. If there are significant differences, the student should consult an advisor for guidance. Students interested in courses of study such as pre-medical, pre-dental, pre-veterinary, pre-pharmacy, pre-physician assistant, or other related programs should follow the STEM A.S. Degree: Biology or Chemistry Area of Concentration and meet with an academic advisor.

Program Learning Outcomes

- Demonstrate analytic thinking and problem solving skills in chemistry.
- Articulate the scientific method.
- Explain fundamental chemical concepts.
- Apply qualitative and quantitative methods to chemical applications.
- Demonstrate the ability to use technology appropriate to chemical applications.
- Be prepared to enter transfer institutions in STEM/chemistry fields.

Program Requirements

- Students must complete their credit **English and Mathematics** within the first 24 credits.
- One course must meet the cultural competence graduation requirement (<https://frederick-public.courseleaf.com/general-education-core/#cultural>).
- **CORE: The General Education CORE** is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. <http://artsys.usmd.edu/>
- In some General Education categories (Mathematics, Biological & Physical Sciences), a 4-credit course selected from the GenEd course list will satisfy the requirement in place of a 3-credit course. Students should check with an advisor before selecting these courses.
- For the Physical Education, Health, or Nutrition requirement, a 3-credit PHED, HLTH, or NUTR course may satisfy the requirement in place of a 1-credit course. Students should check with an advisor before selecting this course.
- Students must earn a grade of "C" or better in ENGL 101 English Composition.
- Students must complete a minimum of nine credits at the 200-level.

Code	Title	Credits
English		
ENGL 101	English Composition	3
Mathematics		

MATH 185	Calculus I	4
Social & Behavioral Sciences		
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral) - select two courses from different disciplines		6
Arts & Humanities		
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)		3
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities)		3
Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication)		3
Biological & Physical Sciences		
CHEM 101	General Chemistry I	4
BSCI 150	Principles of Biology I	4
General Education Elective		
General Education Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#general)		3
Physical Education, Health, or Nutrition Requirement		
Select one PHED, HLTH, or NUTR course		1
Concentration Courses		
CHEM 102	General Chemistry II	4
MATH 195	Calculus II	4
CHEM 201	Organic Chemistry I	4
PHYS 151	General Physics I	4
CHEM 202	Organic Chemistry II	4
Electives		
Select electives in consultation with an advisor - Recommended course(s):		6
PHYS 252 or MATH 285 & MATH 220	General Physics II Calculus III Introduction to MATLAB	
Total Credits		60

Transfer Note

For more information on careers and transfer, contact the Career and Academic Planning Services office at 301.846.2471 or visit Transfer Services (<https://www.frederick.edu/student-resources/counseling-advising/transfer-services.aspx>).

Guided Pathway to Success (GPS)

Suggested schedules map your path to degree completion.

Students should meet with an advisor each semester to carefully select and sequence courses based on their specific academic goals and interests. Visit Jefferson Hall or call 301.846.2471 for advising.

Recommended First Semester		Credits
ENGL 101	English Composition ¹	3
CHEM 101	General Chemistry I	4
MATH 185	Calculus I (Milestone) ^{1,2}	4
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities)		3
Physical Education, Health, or Nutrition Requirement		1,3
Credits		15-17
Recommended Second Semester		
CHEM 102	General Chemistry II (Milestone)	4
BSCI 150	Principles of Biology I	4
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral)		3
MATH 195	Calculus II	4
Credits		15
Recommended Third Semester		
PHYS 151	General Physics I	4

2 Chemistry Area of Concentration within STEM A.S. (Transfer)

Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication)	3
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral) (in a different discipline from first)	3
CHEM 201 Organic Chemistry I (Milestone)	4
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)	3
Credits	17
Recommended Fourth Semester	
Select an elective in consultation with an advisor ³	3-4
General Education Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#general)	3
Select an elective in consultation with an advisor ³	3-4
CHEM 202 Organic Chemistry II ⁴	4
Credits	13-15
Total Credits	60-64

1

Take this course within the first 24 credits.

2

Students who have not taken MATH 165 Precalculus should take it as an elective in the first semester before starting the Calculus sequence.

3

Recommended electives include PHYS 252 General Physics II or (MATH 285 Calculus III and MATH 220 Introduction to MATLAB). Please consult an advisor.

4

Offered spring and summer semesters only.

Part-time Students

Part-time students should complete courses in the order listed on the pathway. Please contact program manager for questions about part-time status.

Students who take fewer than 15 credits each semester or who require developmental English or Math coursework will need additional semesters to complete their degrees. Summer term and January session classes may help students to make faster progress.

Pathway Legend

Milestone - courses with the Milestone notation should be taken within the recommend credit range to stay on track for program completion.

Fall, Spring, Summer - courses with a Fall, Spring, or Summer notation indicate the course is offered in the specified semester only.