CHEMISTRY, B.S. (SCIENCE)

Begin Campus: Any Penn State Campus

End Campus: University Park

Degree Requirements

For the Bachelor of Science degree in Chemistry, a minimum of 125 credits is required:

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15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

A cumulative grade point average of at least a 2.00 is required in these courses. A grade of C or better is required in all courses within the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Code Title Credits
MATH 250 Ordinary Differential Equations 3
MATH 231 Calculus of Several Variables 2
PHYS 211 General Physics: Mechanics 4
PHYS 212 General Physics: Electricity and Magnetism 4
PHYS 213 General Physics: Fluids and Thermal Physics 2
PHYS 214 General Physics: Wave Motion and Quantum Physics 2

Prescribed Courses: Require a grade of C or better
CHEM 110 Chemical Principles I 3
CHEM 111 Experimental Chemistry I 1
CHEM 112 Chemical Principles II 3
CHEM 113 Experimental Chemistry II 1
CHEM 210 Organic Chemistry I 3
CHEM 212 Organic Chemistry II 3
CHEM 213 Laboratory in Organic Chemistry 2
CHEM 227 Analytical Chemistry 4
CHEM 310 Introductory Inorganic Chemistry 3
CHEM 316 The Professional Chemist 1
CHEM 450 Physical Chemistry - Thermodynamics 3
CHEM 452 Physical Chemistry - Quantum Chemistry 3
CHEM 457 Experimental Physical Chemistry 2
MATH 140 Calculus With Analytic Geometry I 4
MATH 141 Calculus with Analytic Geometry II 4

Additional Courses
MATH 250 Ordinary Differential Equations 3
or STAT 401 Experimental Methods 3

Additional Courses: Require a grade of C or better
Select one of the following advanced laboratory courses: 4
CHEM 423W Chemical Spectroscopy
CHEM 425W Chromatography and Electrochemistry
CHEM 431W Organic and Inorganic Preparations
CHEM 459W Advanced Experimental Physical Chemistry

Select 16 credits of chemistry at the 400 level 1

Supporting Courses and Related Areas
Select 17 credits of any courses not on the Chemistry Department list 17 of excluded courses 2

1 Up to 6 co-op credits (2 each of SC 295, SC 395, SC 495) may be used in this category. CHEM 494 may be used, but the total of CHEM 494 credits plus co-op credits may not exceed 8.
2 CHEM 494 may not be used, and only one credit of each SC 295, SC 395, and SC 495 is allowed in this category.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student’s degree program, whichever is higher: 6 credits
University Degree Requirements

First Year Engagement
All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement
6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum
3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits
A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.