

# CHEMISTRY, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Description

The Chemistry minor specifies a series of courses that together provide a broad introduction to the main thrusts of modern chemistry; general, organic, and physical. The Chemistry minor includes substantial laboratory work including general chemistry and either organic or physical chemistry. In addition, several advanced courses chosen by the student from a list of options are required.

## What is Chemistry?

Chemistry is the study of matter and its transformations. Chemists seek a molecular-level understanding of the ways in which atoms combine to form molecules and bulk materials, how molecular structure and interactions lead to macroscopic material properties, and how chemical transformations can be used to create useful materials and store energy.

Research in chemistry intersects a variety of other fields including biology, physics, environmental science, geology, material science, medicine, and more. Faculty in the Department of Chemistry at Penn State are engaged in cutting-edge projects aimed at probing outstanding questions in biology, creating new materials for medicine or energy storage, using computational methods model and simulate a variety of processes, and more.

## You Might Like This Program If...

- You are curious about why the materials you encounter in daily life have certain properties and interact in myriad ways.
- You want to use advanced instrumentation to measure the composition, behaviors, and properties of molecules, atoms, and materials.
- You want to help create new and better chemicals for personal care, medicine, construction, agriculture, or energy storage.

## Program Requirements

| Requirement                | Credits |
|----------------------------|---------|
| Requirements for the Minor | 26-28   |

### Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

| Code  | Title                     | Credits |
|---|---------------------------|---------|
| <b>Prescribed Courses</b>                                 |                           |         |
| <i>Prescribed Courses: Require a grade of C or better</i> |                           |         |
| 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 |

### Additional Courses

*Additional Courses: Require a grade of C or better*

|   |  |     |
|---|--|-----|
| Select one of the following:  |  | 4-6 |
| CHEM 227  | Analytical Chemistry   |     |
| CHEM 450 & CHEM 452   | Physical Chemistry - Thermodynamics and Physical Chemistry - Quantum Chemistry |     |
| CHEM 466 & CHEM 452   | Molecular Thermodynamics and Physical Chemistry - Quantum Chemistry            |     |
| Select 6 credits from 400-level CHEM not used above (excluding CHEM 494, CHEM 494H, CHEM 495, and CHEM 496) |  | 6   |

## Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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