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

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Requirements for the Minor</td>
<td>26-28</td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 210</td>
<td>Organic Chemistry I</td>
<td>3</td>
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Additional Courses
Additional Courses: Require a grade of C or better
Select one of the following: 4-6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 227</td>
<td>Analytical Chemistry</td>
<td></td>
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<tr>
<td>CHEM 450 &amp; CHEM 452</td>
<td>Physical Chemistry - Thermodynamics and Physical Chemistry - Quantum Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 466 &amp; CHEM 452</td>
<td>Molecular Thermodynamics and Physical Chemistry - Quantum Chemistry</td>
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Select 6 credits from 400-level CHEM not used above (excluding CHEM 494, CHEM 494H, CHEM 495, and CHEM 496)

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/)

University Park
David Boehr
Associate Head for Undergraduate Education, Professor of Chemistry
107 Chemistry Building
University Park, PA 16802
814-863-8605
ddb12@psu.edu

Altoona
Richard Bell
Associate Professor of Chemistry
104 Science Building
3000 Ivyside Park
Altoona, PA 16601
814-949-5172
rcb155@psu.edu

Berks
ike Shibley
Program Coordinator, Associate Professor
Luerssen 101G
Reading, PA 19610
610-396-6185
BKChemistry@psu.edu

Erie
Tracy Halmi
Associate Teaching Professor of Chemistry
36 Hammermill
Erie, PA 16563
814-898-6045
tao104@psu.edu

Contact
University Park
DEPARTMENT OF CHEMISTRY
219 Whitmore Laboratory
University Park, PA 16802
814-865-9391
rlw5277@psu.edu

https://science.psu.edu/chem

Altoona
DIVISION OF MATHEMATICS AND NATURAL SCIENCES
104 Science Building
3000 Ivyside Park
Altoona, PA 16601
814-949-5172
rcb155@psu.edu

https://altoona.psu.edu/academics/chemistry/minor/request-information

Berks
DIVISION OF SCIENCE
Luerssen Science Building
Reading, PA 19610
610-396-6185
BKChemistry@psu.edu

Erie
SCHOOL OF SCIENCE
1 Prischak
4205 College Drive
Erie, PA 16563
814-898-6105
behrend-science@psu.edu

https://behrend.psu.edu/school-of-science