Chemistry is the most central of sciences. It is involved in natural processes occurring in living things, the earth, the oceans, and the atmosphere. The chemical industry provides materials to feed, clothe, and house mankind; drugs to combat disease; and processes to provide energy for societal needs. Chemistry is playing an ever-increasing role in our society, particularly in high technology fields such as molecular biology, microelectronics, drug design, and ceramics. The chemistry curriculum provides a rigorous, comprehensive background in the four primary areas of chemistry. The program is appropriate for students who plan to attend graduate school or pursue American Chemical Society (ACS) certification.

The chemistry degree includes Dietrich School General Education Requirements, core chemistry courses, and electives. These electives include undergraduate research, in collaboration with departmental faculty, and courses in frontier areas of chemistry and related fields. It offers special options for students with specific interests in combining chemistry with other subjects, such as Bioscience. These options involve additional courses in the chosen second discipline with a limited overlap of selected required science courses. These elective courses will allow students to focus free credits into a sequence that gives them an in-depth introduction to the subject and will be relevant to their career goals.

The degree in chemistry prepares students for a career in business or industry, or for advanced study in chemistry. Combined with core biology courses, students frequently select the Chemistry major as the preferred major for admission to the graduate health professions, including medical and dental school. In combination with the education option, the chemistry major is prepared to enter a certification program leading to a career in secondary science teaching. Chemists at all levels of training have a wide variety of industrial and corporate career opportunities: in agricultural chemistry, food chemistry, environmental science, petrochemicals, pharmaceuticals, semiconductors and electronics, and fine chemicals, as well as in basic research. Many opportunities exist for chemistry majors with skills in business (sales, technical marketing, management), communications (technical writing, journalism), and material science (nanoscience, research and development, production and manufacturing). The option programs are specifically designed to meet the demand for professionals trained in these and other interdisciplinary areas.

**Required courses for the Chemistry major**
The major requires the completion of 61 credits distributed as follows.

**Chemistry courses**
- CHEM 0110 General Chemistry 1 or CHEM 0710 UHC General Chemistry 1
- CHEM 0120 General Chemistry 2 or CHEM 0720 UHC General Chemistry 2
- CHEM 0250 Analytical Chemistry
- CHEM 0260 Analytical Chemistry Lab
- CHEM 0310 Organic Chemistry 1 or CHEM 0730 UHC Organic Chemistry 1
- CHEM 0320 Organic Chemistry 2 or CHEM 0740 UHC Organic Chemistry 2
- CHEM 0345 Organic Chemistry or CHEM 0750 UHC Organic Chemistry Lab
- CHEM 1130 Inorganic Chemistry
- CHEM 1140 Inorganic Chemistry Lab
- CHEM 1250 Instrumental Analysis
- CHEM 1255 Instrumental Analysis Lab
- CHEM 1410 Physical Chemistry 1
- CHEM 1420 Physical Chemistry 2
- CHEM 1430 Physical Chemistry Lab 1
- CHEM 1440 Physical Chemistry Lab 2

**Other required Natural Science courses**
- MATH 0220, MATH 0230 Analytic Geometry and Calculus 1 and 2
- CHEM 1000 Mathematics for Chemists or MATH 0240 Analytical Geometry and Calculus 3
- PHYS 0174, PHYS 0175, PHYS 0219 Physics for Science and Engineering 1, 2, and Lab

**Science electives (2-credit minimum)**
- BIOSC: 0350, 0370, 1000, 1500, 1810, 1820, 1830, 1850, 1940
- CHEM: 1310, 1380, 1460, 1600, 1605, 1620, 1700, 1710, 1720, 1810, courses above 2000 except 2700
- CS: 0401, 0441, 0445
- GEOL 1001, 1500
- STAT 1000

**Note:** Students seeking ACS Certification must take either BIOSC 1000 or CHEM 1810.

**Grade requirements**
A minimum GPA of 2.0 in departmental courses is required for graduation.
Satisfactory/No Credit option
CHEM 0110, CHEM 0120, and all required Mathematics and Physics courses can be taken on an S/NC basis.

Writing (W) requirement
Students must complete at least one W-course in the major.

Honors major requirements
To earn departmental honors in chemistry, the student must have an overall minimum GPA of 3.0;
• maintain a minimum GPA of 3.25 in all required CHEM courses;
• present two credits of CHEM 1710 Undergraduate Research;
• present one credit of CHEM 1711 Undergraduate Research Writing.

Advising
George C. Bandik
Director of Undergraduate Studies
CHVRN 107
412-624-8212
Bandik@Pitt.edu

Checklist and suggested plan of study for the Chemistry major

<table>
<thead>
<tr>
<th>Fall freshman year</th>
<th>Spring freshman year</th>
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<tbody>
<tr>
<td>______ CHEM 0110 / 0710</td>
<td>______ CHEM 0120 / 0720</td>
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<tr>
<td>______ MATH 0220</td>
<td>______ MATH 0230 / 0235</td>
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<th>Spring sophomore year</th>
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<td>______ CHEM 0310 / 0730</td>
<td>______ CHEM 0320 / 0740</td>
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<tr>
<td>______ CHEM 1000 / MATH 0240</td>
<td>______ CHEM 0345</td>
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<tr>
<td>______ PHYS 0174 / 0475</td>
<td>______ PHYS 0175 / 0476</td>
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<td>______ PHYS 0219</td>
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<th>Spring junior year</th>
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<tr>
<td>______ CHEM 0250</td>
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<tr>
<td>______ CHEM 0260</td>
<td>______ CHEM 1255</td>
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<tr>
<td>______ CHEM 1410</td>
<td>______ CHEM 1420</td>
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<tr>
<td>______ PHYS 0219 / 0577</td>
<td>______ CHEM 1430</td>
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<th>Fall senior year</th>
<th>Spring senior year</th>
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<td>______ CHEM 1130</td>
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<td>______ CHEM 1440</td>
<td>______ CHEM W course</td>
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<tr>
<td>______ Science Elective</td>
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Curricular options for the Chemistry major
Each option allows for the waiver of CHEM 1140, CHEM 1440, and the science elective.

Bioscience option (14-credit minimum)
______ BIOSC 0057
______ BIOSC 0150 / BIOSC 0715
______ BIOSC 0067
______ BIOSC 0160 / BIOSC 0716
Two of the following
______ CHEM 1810 or BIOSC 1000 or BIOSC 1810
______ BIOSC 0350 / BIOSC 0355
______ BIOSC 0370
______ BIOSC 1500

Note: This option allows the student to take PHYS 0110, 0111, and 0212 in lieu of PHYS 0174, 0175, and 0219.

Business option (18-credit minimum)
______ ECON 0100 or ECON 0110 or ECON 0120
______ BUSERV 1920 or BUSACC 0030
______ BUSERV 1925 or BUSACC 0040
______ BUS____ (BUSERV/CBA Elective)
______ BUS____ (BUSERV/CBA Elective)
______ (BUSERV/CBA Elective)

Note: This option allows the student to waive CHEM 1420 also.

Communications option (12-credit minimum)
______ ENGCMP 0400

Three of the following
______ COMMRC 0320 ______ ENGWRT 1330
______ COMMRC 1105 ______ ENGWRT 1340
______ ENGWRT 0550 ______ ENGWRT 1394
______ ENGWRT 1310 ______ LING 0080
______ ENGWRT 1320 ______ LING 1000

Education option: (13-credit minimum)
______ BIOSC 0057
______ BIOSC 0150 or BIOSC 0715
______ IL 1580
______ PSYED 1001 or PSYED 1003

Note: The note under option 1 also applies to this option.

Material science option
______ ENGR 0022 ______ CHEM 1605
______ CHEM 1600 ______ CHEM 1620

International Studies option
Students pursuing this option must complete nine credits of natural science coursework as approved by the departmental advisor.

Checklist for the Chemistry minor
Students must apply for any official Minor they will complete or have completed at the time they apply for graduation.

Core requirements
One of the following courses
______ CHEM 0110
______ CHEM 0120
______ CHEM 0710
______ CHEM 0720
______ CHEM 0760
______ CHEM 0770
______ CHEM 0960
______ CHEM 1410
______ CHEM 1420
______ BIOSC 1000
______ BIOSC 1810

Advanced lecture requirements (3 courses)
______ CHEM 0250
______ CHEM 0310 or BIOSC 0310 or BIOSC 0715
______ CHEM 0320 or BIOSC 0320 or BIOSC 0716
______ CHEM 1130
______ CHEM 1140
______ CHEM 1150
______ CHEM 1250
______ CHEM 1255
______ CHEM 1255
______ CHEM 1255
______ CHEM 1430
______ CHEM 1430
______ CHEM 1440
______ CHEM 1440

Laboratory requirements (2 credits)
______ CHEM 0260
______ CHEM 0345
______ CHEM 1140
______ CHEM 1140
______ CHEM 1140
______ CHEM 1140