BACHELOR OF SCIENCE IN CHEMISTRY

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Chemistry majors explore the world on the molecular level. Students gain knowledge about the wide range of properties and reactions of inorganic, organic and biological compounds. Lab courses enable you to carry out syntheses and analyze materials. You also get hands-on access to a sophisticated array of instruments, which include a variety of spectrophotometers and chromatographic systems build confidence in your ability to solve complex problems in the field. You can individualize your experience by taking electives in specialized areas, such as environmental chemistry, or pursue a minor in a completely different but complementary field to meet your career goals.

We teach you to evaluate and interpret data, hone your analytical thinking skills and present the results of your scientific research to various audiences. Because of our small class sizes and highly accessible faculty, you'll get plenty of support and the personal attention you need. An independent research project strengthens the skills you develop in the classroom. Companies such as Alexion Pharmaceuticals, Connecticut Agricultural Experiment Station and Lab Synergy offer real-life work experience in the form of internships which you may pursue.

Your degree in chemistry qualifies you to work as a laboratory or research assistant in an academic, consumer product, pharmaceutical or industrial research or quality control laboratory upon graduation, but you'll also have the foundation to pursue an advanced degree in a specific area of chemistry or in other fields including medicine, pharmacy, veterinary medicine or law.

BS in Chemistry Curriculum

Initial placement in English and mathematics courses is determined by placement examinations and an evaluation of high school units presented. Students who do not place directly into MA 140 should take MA 140. MA 152 is strongly recommended.

Chemistry majors must maintain a minimum grade of C in all required chemistry, physics and mathematics courses. Any required course not listed in the course descriptions may be considered for scheduling when the need arises. All 4-credit science courses have a laboratory component. Chemistry electives must be selected with the advice and approval of the department adviser. Open electives should be selected based upon student interests and career goals from offerings in all schools.

Students majoring in chemistry must complete the following requirements:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td><strong>University Curriculum</strong></td>
<td>46</td>
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<tr>
<td></td>
<td><strong>College of Arts and Sciences Curriculum</strong></td>
<td>3</td>
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<tr>
<td>CHE 110</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>&amp; 110L</td>
<td>and General Chemistry I Lab</td>
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<tr>
<td>CHE 111</td>
<td>General Chemistry II</td>
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<td>&amp; 111L</td>
<td>and General Chemistry II Lab</td>
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**Chemistry Core Requirements**

- CHE 210 & 210L: Organic Chemistry I and Organic Chemistry I Lab
- CHE 211 & 211L: Organic Chemistry II and Organic Chemistry II Lab
- CHE 215 & 215L: Analytical Chemistry and Analytical Chemistry Lab
- CHE 301 & 301L: Physical Chemistry I and Physical Chemistry I Lab
- CHE 302 & 302L: Physical Chemistry II and Physical Chemistry II Lab
- CHE 305 & 305L: Instrumental Analysis and Instrumental Analysis Lab
- CHE 315 & 315L: Biochemistry I and Biochemistry Lab I
- CHE 410: Inorganic Chemistry
- CHE 475: Chemistry Seminar I
- CHE 476: Chemistry Seminar II
- CHE 490: Chemistry Research I
- CHE 491: Chemistry Research II
- Two upper level CHE elective courses

**Cognate Courses**

- MA 141: Calculus of a Single Variable
- PHY 110 & 110L: General Physics I and General Physics I Lab
- PHY 111 & 111L: General Physics II and General Physics II Lab

**Open electives**

Total Credits: 120

1. All students must complete the University Curriculum (http://catalog.qu.edu/academics/university-curriculum) requirements.
2. Students must complete the College of Arts and Sciences Curriculum (http://catalog.qu.edu/arts-sciences/cas-curriculum) requirements specific to their major. See details below.
3. Typically CHE 300 (offerings vary); departmental integrated capstone is currently included in this category.
4. Required courses, which support the chemistry major and may be used to satisfy requirements outside of the major
5. MA 151 may be substituted for MA 141. MA 152 is also highly recommended but is not required.
6. PHY 121 and PHY 122 may be substituted.
7. Students take open electives to fulfill the minimum number of credits for graduation.

Minimum number of credits required for graduation is 120.

**College of Arts and Sciences Curriculum**

The College of Arts and Sciences offers bachelor of arts and bachelor of science degrees. Students earning either degree must complete one foreign language through the 102-level, and all students are encouraged to pursue a balanced program of study.

In addition, students earning a bachelor of arts degree must fulfill separate requirements for breadth and depth of study.
For the breadth requirement, students must complete at least 3 credits in each of the four CAS disciplinary areas other than the area of the student’s major. These areas are fine arts, humanities, natural sciences and social sciences. A course taken to fulfill the CAS breadth requirement may not also be used to fulfill a UC requirement.

For the depth requirement, students must complete at least 9 credits within a single subject area other than that of the major. (A “subject area” is identified with a catalog subject code, such as PL, CJ, WS, MA, etc.)

A student enrolled in the Accelerated Dual-Degree BA/JD or BS/JD (3+3) program is exempt from these College of Arts and Sciences requirements, with the exception of the foreign language requirement. A student pursuing a double major is likewise exempt from these College of Arts and Sciences requirements, with the exception of the foreign language requirement.

**Student Learning Outcomes**

Upon completion of the chemistry program, students will demonstrate the following competencies:

1. **Disciplinary Knowledge**: Develop a broad knowledge base of chemical principles in the areas of general, organic, analytical, inorganic, physical, and biochemistry along with cognate knowledge in the areas of physics and mathematics.

2. **Laboratory Skills**: Develop relevant knowledge and hands-on skills to be able to work safely and independently in a chemistry laboratory setting to collect, record and evaluate experimental data including the utilization of both classical and instrumental techniques.

3. **Scientific Information Literacy**: Conduct relevant field-specific searches of scientific databases to locate research articles related to a topic or problem and gain experience in reading, interpreting and discussing research literature in the field.

4. **Research Experience**: Apply acquired knowledge and skills to investigate problems by working on independent mentored project(s) through a senior research project, independent research, internship(s) and/or summer research study.

5. **Critical Thinking and Problem-Solving**: Apply knowledge and skills to solve increasingly complex conceptual and quantitative problems in the field.

6. **Scientific Communication**: Demonstrate competency in oral and written expression of the results of their laboratory work through written lab reports, poster presentations and seminar presentations.

7. **Career Advancement**: Be competitive for employment in an entry-level field-related position or acceptance into a graduate or professional degree program.

**Admission Requirements: College of Arts and Sciences**

The requirements for admission into the undergraduate College of Arts and Sciences programs are the same as those for admission to Quinnipiac University.

Admission to the university is competitive, and applicants are expected to present a strong college prep program in high school. Prospective freshmen are strongly encouraged to file an application as early in the senior year as possible, and arrange to have first quarter grades sent from their high school counselor as soon as they are available.

For detailed admission requirements, including required documents, please visit the Admissions (http://catalog.qu.edu/general-information/admissions) page of this catalog.