CHEMISTRY, BS

for the degree of Bachelor of Science in Chemistry (Specialized Curriculum)

For the Degree of Bachelor of Science in Liberal Arts and Sciences

- Major in Computer Science & Chemistry, BSLAS (http://catalog.illinois.edu/undergraduate/eng_las/computer-science-chemistry-bslas/)
- Major in Chemistry (Sciences and Letters) (http://catalog.illinois.edu/undergraduate/las/chemistry-bslas/#degreerequirementstext)
- Major in Chemistry (Sciences and Letters), Chemistry Teaching Concentration (http://catalog.illinois.edu/undergraduate/las/chemistry-bslas/chemistry-teaching/)

For the Degree of Bachelor of Science in Chemistry

- Major in Chemistry (Specialized Curriculum) (p. 1)
- Major in Chemistry (Specialized Curriculum), Environmental Chemistry Concentration (http://catalog.illinois.edu/undergraduate/las/chemistry-bslas/environmental-chemistry/)

Specialized Curriculum

The typical program of courses required to satisfy this degree totals 128-134 hours; in no case will a program totaling less than 120 hours qualify for graduation. Graduation requires grade point averages of at least 2.0 overall and 2.0 in chemistry, mathematics, and physics courses. The Department of Chemistry will supply, upon request, a brochure showing recommended semester-by-semester programs for the completion of the curriculum.

Students in the specialized curriculum in Chemistry must include a course in Biochemistry in the Advanced Hours area or the Technical Elective area to be certified by the American Chemical Society as having met its specifications.

Departmental distinction: Students qualify for graduation with distinction by exhibiting superior performance in both course work and in senior thesis research. To be eligible, a student must have a UIUC coursework major grade point average of 3.25, must take CHEM 499 (normally for two semesters) and submit a senior thesis for evaluation, and must have their undergraduate research advisor submit to the department Head a letter of support attesting to the effort invested by the student. The minimum major GPAs for Distinction, High Distinction, and Highest Distinction are 3.25, 3.5, and 3.75, respectively. Final decisions on awarding Distinction honors will be made by the Head or designee.

Requirements

General education: Students must complete the Campus General Education (https://courses.illinois.edu/gened/DEFAULT/DEFAULT/) requirements including the campus general education language requirement.

Minimum hours required for graduation: 120 hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CHEM 150</td>
<td>First Semester Success in Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>Accelerated Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 203</td>
<td>Accelerated Chemistry Lab I</td>
<td></td>
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<tr>
<td>CHEM 204</td>
<td>Accelerated Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 205</td>
<td>Accelerated Chemistry Lab II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 236</td>
<td>Fundamental Organic Chem I</td>
<td></td>
</tr>
<tr>
<td>CHEM 237</td>
<td>Structure and Synthesis</td>
<td></td>
</tr>
<tr>
<td>CHEM 312</td>
<td>Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Instrumental Chem Systems Lab</td>
<td></td>
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<tr>
<td>CHEM 420</td>
<td>Instrumental Characterization</td>
<td></td>
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<tr>
<td>CHEM 436</td>
<td>Fundamental Organic Chem II</td>
<td></td>
</tr>
<tr>
<td>CHEM 442</td>
<td>Physical Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 444</td>
<td>Physical Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 445</td>
<td>Physical Principles Lab I</td>
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Advanced Chemistry

Chemistry/Biochemistry courses numbered 300 or higher, which must include one from the following:

- CHEM 317 Inorganic Chemistry Lab
- CHEM 437 Organic Chemistry Lab
- CHEM 447 Physical Principles Lab II

Additional laboratory work:

- BIOL 455 Techqs Biochem & Biotech
- CHEM 317 Inorganic Chemistry Lab
- CHEM 437 Organic Chemistry Lab
- CHEM 447 Physical Principles Lab II

Additional chemistry/biochemistry courses to complete the 11-hour requirement in advanced chemistry

Mathematics:

- MATH 220 Calculus
- MATH 221 Calculus I
- MATH 231 Calculus II
- MATH 241 Calculus III

Physics:

- PHYS 211 University Physics: Mechanics
- PHYS 212 University Physics: Elec & Mag
- PHYS 214 Univ Physics: Quantum Physics

Technical Electives, including the following

Required Mathematics:

- MATH 225 Introductory Matrix Theory
- MATH 414 Applied Linear Algebra

MATH 285 or equivalent

Strongly Recommended:

- CHEM 499 Senior Thesis (maximum of 10 hours)

Recommended: basic computer science

Information listed in this catalog is current as of 11/2021
Other technical courses chosen from:  
Chemistry (300 or higher), biochemistry, chemical engineering (200 or higher)  
Courses in life sciences (all courses at 200 or higher)  
Mathematics or computer science above the basic level  
Other courses in the physical and biological sciences and engineering including CHEM 199  

| Nontechnical Requirements  
Foreign language - three semesters of college study  
(or three years of high school study) in a single foreign language  
Composition I  
Advanced Composition  
Humanities/Arts to satisfy the campus general education requirements  
Social/Behavioral sciences to satisfy the campus general education requirements  
Cultural Studies to satisfy the campus general education requirement  
Free electives |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 14              | Variable        | General education:  
|                 |                 | Foreign language - three semesters of college study  
|                 |                 | Composition I  
|                 |                 | Advanced Composition  
|                 |                 | Humanities/Arts to satisfy the campus general education requirements  
|                 |                 | Social/Behavioral sciences to satisfy the campus general education requirements  
|                 |                 | Cultural Studies to satisfy the campus general education requirement  
| 30              |                 | Free electives |
| 1 Hours given are those typical to meet requirement.  
2 On and off-campus transfer students in the BS curriculum may substitute  
1 additional hour of 200 level or higher Chemistry (including CHEM 297,  
CHEM 397, CHEM 496, CHEM 497, or CHEM 499) for CHEM 150. This  
may not include CHEM 222 or CHEM 223 for students who took the  
CHEM 102, CHEM 103, CHEM 104 and CHEM 105 sequence instead of  
CHEM 202, CHEM 203, CHEM 204, and CHEM 205.  
3 If necessary, CHEM 102 and CHEM 103, CHEM 104 and CHEM 105, CHEM  
222, and CHEM 223 may be substituted for CHEM 202, CHEM 203, CHEM  
204, and CHEM 205. Warning: CHEM 222 and CHEM 223 are offered only  
in the fall semester.  
4 The course chosen from CHEM 317, CHEM 437, or CHEM 447 cannot be  
used to satisfy the additional chemistry lab requirement.  
5 Students who present less than 6 semester hours credit in a combination  
of CHEM 397, CHEM 497 and/or CHEM 499 for graduation must complete  
two additional courses chosen from the list. Students who will present  
at least 6 semester hours credit in a combination of CHEM 397, CHEM  
497 and/or CHEM 499 for graduation are required to complete only one  
laboratory course from the list.  
6 Students contemplating transfer to the chemical engineering curriculum  
should choose MATH 415.  
7 Three hours maximum credit in CHEM 199. Additional courses in the  
sciences and engineering can be taken upon the approval of the chair of  
the chemistry department advising committee. Most approved courses  
must have a strong technical prerequisite, such as one year of college- 
level math or science.  
8 The requirements for the Campus General Education categories Natural  
Sciences and Technology and Quantitative Reasoning I and II are fulfilled  
through required coursework in the curriculum.  
9 The courses taken to satisfy Advanced Composition requirement may  
also be used to partially satisfy one of the core chemistry, advanced  
chemistry, mathematics, physics, or technical electives requirements  
(if appropriate), or may be used to partially satisfy the free electives  
requirements.  
10 The courses taken to satisfy Western and/or Non-Western Civilization  
requirements may also be used to satisfy nontechnical and/or free  
elective categories.  
11 Restrictions: (1) Courses preparatory to or used to satisfy the minimum  
requirements specified in the above requirements may not be included as  
free electives. (2) No first-year foreign language course (e.g., 101, 102, or  
equivalent) may be included unless it is a different language than used to  
satisfy the foreign language nontechnical requirement.