CHEMISTRY (BA)

This program was approved for students entering the university in the Summer 2019–Spring 2020 catalog year. For more information about catalog year, go to Catalog Year Information (http://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year).

Bachelor of Arts in Chemistry
Unit: College of Arts and Sciences (AS) (http://www.louisville.edu/a-s)
Department: Chemistry (http://louisville.edu/chemistry)
Academic Plan Code(s): CHM_BA

Program Information
The BA degree in chemistry is designed for students who want a more general education than is possible in the BS curriculum, while at the same time receiving a substantial background in chemistry. For several related fields, this program offers a broad pre-professional education.

Completion of this degree requires work to be submitted for the department’s Learning Outcomes Measurement. For details, contact the department.

Degree Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements">http://catalog.louisville.edu/undergraduate/general-education-requirements</a>)</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>College/School Requirements</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Program/Major Requirements</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Minimum Total Hours</td>
<td>121</td>
<td></td>
</tr>
</tbody>
</table>

1 Some credit hours from the General Education Requirements may be satisfied by courses defined by the program, in which case additional electives will be required to complete the minimum hours for the degree. See the Degree Requirements tab for specific coursework.

Specific coursework information can be found on the Degree Requirements tab.

Early Start Program (Jointly with the College of Education and Human Development)
The Master of Arts in Teaching program in conjunction with the undergraduate programs in Chemistry, Biology, and Mathematics offers a comprehensive and professionally-focused program leading to an additional degree of MAT Middle or Secondary Education. This early start program enables superior students to receive two degrees within five years. A total of 148 credits are required for the dual degrees: 121 credits of coursework devoted toward the baccalaureate degree and 36 credits toward the MAT, with nine hours double-counted. This program will be available for students who are entering their junior year. They may take graduate level courses in the College of Education and Human Development (CEHD) in their 4th year of study.

The current qualifications for the joint degree program have been agreed upon by discipline faculty from the Colleges of Arts and Sciences and Education and Human Development. The criteria vary by discipline. Students enrolling in the accelerated program will be non-thesis students and must adhere to all policies pertaining to Graduate Students. All interested students must submit an application to the College of Education and Human Development (CEHD) MAT program and meet the admission criteria.

Departmental Admission Requirements
Admission to the major in Chemistry requires completion of CHEM 202 (or equivalent course from another institution) with a grade of C or better. The Application for Major form can be found on the Arts & Sciences Advising Center website (http://louisville.edu/artsandsciences/advising/apply).

General Education Requirements

<table>
<thead>
<tr>
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<th>Title</th>
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</tr>
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<tbody>
<tr>
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<td>31</td>
<td></td>
</tr>
<tr>
<td>The following courses are required by the program and can satisfy the respective General Education Requirement:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 201</td>
<td>General Chemistry I - S</td>
<td></td>
</tr>
<tr>
<td>CHEM 207</td>
<td>Introduction to Chemical Analysis I - SL</td>
<td></td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calculus I - QR</td>
<td></td>
</tr>
<tr>
<td>PHYS 221</td>
<td>Fundamentals of Physics I - S</td>
<td></td>
</tr>
</tbody>
</table>

*All degrees require the completion of the University-wide General Education Program (link provided above). Some General Education requirements may be met in the requirements for the major or supporting coursework, in which case additional electives may be required to complete the minimum hours for the degree.

College/School Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 100</td>
<td>Student Success Center Orientation</td>
<td>1</td>
</tr>
<tr>
<td>or GEN 101</td>
<td>Arts and Sciences Orientation</td>
<td></td>
</tr>
<tr>
<td>Foreign Language</td>
<td>Electives in Humanities or Social Sciences</td>
<td>12</td>
</tr>
<tr>
<td>WR—two approved courses at the 300 level or above</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Minimum Total Hours</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

Program/Major Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 201</td>
<td>General Chemistry I - S</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>General Chemistry II - S</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 207</td>
<td>Introduction to Chemical Analysis I - SL</td>
<td>1</td>
</tr>
</tbody>
</table>
CHEM 208  Introduction to Chemical Analysis II - SL  1
CHEM 209  Introduction to Chemical Analysis III  1
CHEM 210  Introduction to Chemical Analysis IV 4  1
CHEM 341  Organic Chemistry I  3
CHEM 342  Organic Chemistry II  3
CHEM 343  Organic Chemistry Laboratory I  2
CHEM 344  Organic Chemistry Laboratory II  2
CHEM 441  Elements of Physical Chemistry 3
or CHEM 465  Physical Chemistry I  2
CHEM 470  Physical Chemistry Laboratory - WR 5  2
CHEM 527  Introduction to Separations and Spectroscopy - WR  3
CHEM electives at 300+ level (includes CUE, see below) 6,7  11

Supporting Courses

MATH 205  Calculus I - QR  4
MATH 206  Calculus II  4

Complete one of the following sequences:  8-10

Sequence 1:
PHYS 221  Fundamentals of Physics I - S 4
PHYS 222  Fundamentals of Physics II - S
PHYS 223  Fundamentals of Physics Lab I - SL
PHYS 224  Fundamentals of Physics Laboratory II - SL

Sequence 2:
PHYS 295  Introductory Laboratories I - SL 4
PHYS 296  Introductory Laboratories II - SL
PHYS 298  Introductory Mechanics, Heat and Sound - S 4
PHYS 299  Introductory Electricity, Magnetism and Light

Minimum Electives 9
Minimum Total Hours  68

Code  Title  Hours
Chemistry Electives
CHEM 425  Instrumental and Statistical Analysis  3
CHEM 430  Practicum in Chemistry Education - CUE  1
CHEM 445  Survey of Biochemistry 8  3
CHEM 515  Inorganic Chemistry  3
CHEM 528  Contemporary Methods of Synthesis and Analysis I - CUE  3
CHEM 529  Contemporary Methods of Synthesis and Analysis II  3
CHEM 545  Biochemistry I 8  3
CHEM 546  Biochemistry Laboratory  2
CHEM 547  Biochemistry II  3
CHEM 555  Theory and Application of Computational Chemistry  3
CHEM 557  Bio-Orgnic Phenomena  3
CHEM 390  Undergraduate Research - CUE, WR  3
CHEM 391  Undergraduate Research - CUE  1-3
CHEM 392  Undergraduate Research - CUE  1-3
CHEM 491  Undergraduate Research - CUE  1-3
CHEM 492  Undergraduate Research  1-3
CHEM 420  Cooperative Internship in Chemistry - CUE, WR  1-3

Only 40 hours in the major department may be applied toward the Bachelor of Arts Degree.

At least 50 of the total minimum hours required must be at the 300 level or above.

1 Completion of the intermediate level of a single foreign language
2 In addition to courses counted toward General Education; 6 hours must be at 300 level or above.
3 May be incorporated into other degree requirements
4 May fulfill General Education requirement.
5 CHEM 470 plus 3 semester hours of another WR course will fulfill the WR requirement.
6 Independent Study may not be used for this requirement.
7 See table for CHEM Electives. With the consent of the instructor(s), graduate level courses in Chemistry may also be used to fulfill these requirements.
8 Credit may not be earned for both CHEM 445 and CHEM 545.
9 Students who satisfy General Education Requirements by courses defined by the program will require additional electives to complete the minimum hours for the degree.

Flight Plan

Course  Title  Hours
Year 1  Fall
GEN 100  Student Success Center Orientation  1
or GEN 101  or Arts and Sciences Orientation
CHEM 201  General Chemistry I - S  3
CHEM 207  Introduction to Chemical Analysis I - SL  1
CHEM 208  Introduction to Chemical Analysis II - SL  1
ENGL 101  Introduction to College Writing - WC  3
General Education: Cardinal Core Oral Communication - OC  3
General Elective  3

Hours  15

Spring
CHEM 202  General Chemistry II - S  3
CHEM 209  Introduction to Chemical Analysis III  1
CHEM 210  Introduction to Chemical Analysis IV  1
ENGL 102  Intermediate College Writing - WC  3
General Education: Cardinal Core Arts & Humanities - AH  3
General Education: Cardinal Core Social & Behavioral Historical Perspective - SBH  3

Hours  14

Year 2  Fall
CHEM 341  Organic Chemistry I  3
CHEM 343  Organic Chemistry Laboratory I  2
PHYS 221  Fundamentals of Physics I - S  3
PHYS 223  Fundamentals of Physics Lab I - SL  1
MATH 205  Calculus I - QR  4
General Elective (300 level or above)  3

Spring
CHEM 342  Organic Chemistry II  3
CHEM 344  Organic Chemistry Laboratory II  2
PHYS 222  Fundamentals of Physics II - S  3
PHYS 224  Fundamentals of Physics Laboratory II - SL  1
MATH 206  Calculus II  4
General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2  3

Hours  16

Year 3
Fall
CHEM 441  Elements of Physical Chemistry  3
or CHEM 465  Physical Chemistry I  3
Chemistry Elective  2-3
Humanities or Social Science Elective (300 level or above)  3
Foreign Language  4
General Elective (300 level or above)  3

Hours  15-16

Spring
CHEM 470  Physical Chemistry Laboratory - WR  2
Chemistry Elective  3
General Education: Cardinal Core Social & Behavioral US Diversity - SBD1  3
Foreign Language  4
General Elective  3

Hours  15

Year 4
Fall
CHEM 527  Introduction to Separations and Spectroscopy - WR  3
Chemistry Elective  3
Foreign Language  4
Humanities or Social Science Elective (300 level or above)  3
General Elective  3

Hours  16

Spring
Chemistry Elective (CUE)  3
Humanities or Social Science Elective (300 level or above)  3
General Elective  3
General Elective  3
General Elective  2

Hours  14

Minimum Total Hours  121-122

Degree Audit Report
Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan. What-if reports allow you to compare the courses you have completed in your current academic plan to the courses required in another academic plan. Should you have questions about either report, please consult with your academic advisor.

To create either report:
1. Log into your ULink account.
2. Click on the Student Services tab.
3. Next, click on "View my Academic Advisement Report" to run a Degree Audit report in the Undergraduate Advising area.

4. To create a What-if report, click on "Create a What-if Advisement Report."

Click here to run a Degree Audit report, or create a What-if report. (https://ulink.louisville.edu)

Flight Planner
Based on your major, the Flight Planner tool may be available for you to create a personalized Flight Plan. The Flight Planner can be found in the ULink Student Center. Consult with your advisor for assistance with the Flight Planner.