

# CHEMISTRY (BA)



This program was approved for students entering the university in the Summer 2022–Spring 2023 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

Code	Title	Hours
	General Education Requirements ( <a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a> ) <sup>1</sup>	31
	College/School Requirements	22
	Program/Major Requirements <sup>1</sup>	40
	Supporting Courses	28-30
<b>Minimum Total Hours</b>		<b>121-123</b>

<sup>1</sup> 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/>).

## General Education Requirements

Code	Title	Hours
	General Education Requirements ( <a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a> ) <sup>*</sup>	31
The following courses are required by the program and can satisfy the respective General Education Requirement:		
CHEM 201	General Chemistry I - S	
CHEM 207	Introduction to Chemical Analysis I - SL	
MATH 205	Calculus I - QR	
PHYS 221	Fundamentals of Physics I - S	

<sup>\*</sup>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

Code	Title	Hours
<b>Arts &amp; Sciences Requirements</b>		
GEN 100 or GEN 101	Student Success Center First Year Experience Arts & Sciences First Year Experience	1
	Foreign Language <sup>1</sup>	12
	Electives in Humanities or Social Sciences <sup>2</sup>	9
	WR—two approved courses at the 300 level or above <sup>3</sup>	
<b>Minimum Total Hours</b>		<b>22</b>

## Program/Major Core

Code	Title	Hours
<b>Department of Chemistry</b>		
CHEM 201	General Chemistry I - S <sup>4</sup>	3
CHEM 202	General Chemistry II - S <sup>4</sup>	3
CHEM 207	Introduction to Chemical Analysis I - SL <sup>4</sup>	1

CHEM 208	Introduction to Chemical Analysis II - SL	1
CHEM 209	Introduction to Chemical Analysis III	1
CHEM 210	Introduction to Chemical Analysis IV <sup>4</sup>	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 425	Instrumental and Statistical Analysis	3
CHEM 441	Elements of Physical Chemistry	3
or CHEM 465	Physical Chemistry I	
CHEM 470	Physical Chemistry Laboratory - WR <sup>5</sup>	2
Select one of the following:		3
CHEM 426	Instrumental and Statistical Analysis Laboratory - WR	
CHEM 528	Contemporary Methods of Organic Synthesis and Analysis - CUE	
CHEM 529	Contemporary Methods of Inorganic Synthesis and Analysis - WR	
Select one of the following:		3
CHEM 390	Undergraduate Research - WR, CUE	
CHEM 391	Undergraduate Research - CUE	
CHEM 392	Undergraduate Research - CUE	
CHEM 420	Cooperative Internship in Chemistry - WR, CUE	
CHEM 491	Undergraduate Research - CUE	
CHEM 492	Undergraduate Research	
Select two of the following:		6
CHEM 445	Survey of Biochemistry	
or CHEM 545	Biochemistry I	
CHEM 515	Inorganic Chemistry	
CHEM 527	Spectroscopic Identification of Organic Compounds - WR	
CHEM 555	Theory and Application of Computational Chemistry	
CHEM 557	Bio-Organic Phenomena	

**Minimum Total Hours** **40**

Code	Title	Hours
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**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	
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	
PHYS 296	Introductory Laboratories II - SL	
PHYS 298	Introductory Mechanics, Heat and Sound - S	
PHYS 299	Introductory Electricity, Magnetism and Light	

Minimum Electives <sup>6</sup> **12**

**Minimum Total Hours** **28-30**

Code	Title	Hours
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**Culminating Undergraduate Experience (Graduation requirement)**

Requirement fulfilled by completing one of the following:

CHEM 390	Undergraduate Research - WR, CUE	
CHEM 391	Undergraduate Research - CUE	
CHEM 392	Undergraduate Research - CUE	
CHEM 420	Cooperative Internship in Chemistry - WR, CUE	
CHEM 430	Practicum in Chemistry Education - CUE	
CHEM 491	Undergraduate Research - CUE	
CHEM 528	Contemporary Methods of Organic Synthesis and Analysis - CUE	

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 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
<b>Year 1</b>		
<b>Fall</b>		
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
GEN 100	Student Success Center First Year Experience	1
or GEN 101	or Arts & Sciences First Year Experience	
ENGL 101	Introduction to College Writing - WC	3
General Education: Cardinal Core Oral Communication - OC		3
General Elective		3
		<b>Hours</b>
		<b>15</b>
<b>Spring</b>		
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
		<b>Hours</b>
		<b>14</b>
<b>Year 2</b>		
<b>Fall</b>		
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
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
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
<b>Hours</b>		<b>16</b>
<b>Year 3</b>		
<b>Fall</b>		
CHEM 425	Instrumental and Statistical Analysis	3
CHEM 441	Elements of Physical Chemistry	3
or CHEM 465	or Physical Chemistry I	
Foreign Language 1		4
Humanities or Social Science Elective (300 level or above)		3
General Elective (300 level or above)		3
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
CHEM 445	Survey of Biochemistry	3
CHEM 470	Physical Chemistry Laboratory - WR	2
Humanities or Social Science Elective (300 level or above)		3
Foreign Language 2		4
General Elective		3
<b>Hours</b>		<b>15</b>
<b>Year 4</b>		
<b>Fall</b>		
CHEM 426	Instrumental and Statistical Analysis Laboratory - WR	2
CHEM 515	Inorganic Chemistry	3
Foreign Language 3		4
Humanities or Social Science Elective (300 level or above)		3
General Elective		3
<b>Hours</b>		<b>15</b>
<b>Spring</b>		
General Education: Cardinal Core Social & Behavioral US Diversity - SBD1		3
Chemistry Research or Internship		3
General Elective		3
General Elective		3
General Elective		2
<b>Hours</b>		<b>14</b>
<b>Minimum Total Hours</b>		<b>121</b>

### 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.

### 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 Academic Progress tile.
3. Next, click on "View my Degree Audit" 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>)