UNIVERSITY OF MINNESOTA
Driven to Discover℠

Twin Cities Campus

Chemistry B.A.

Chemistry

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 59 to 67
- Degree: Bachelor of Arts

An active, modern program of chemical education at the undergraduate level must do more than simply train professional chemists. Chemistry, the central science, is an important component of many disciplines and should be accessible to all students seeking a liberal education. The chemistry department contributes actively to increasing the level of scientific literacy of all students. The program also serves students by recognizing different needs, interests, and career goals.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of any second language.

CLA BA degrees require 4 semesters or the equivalent of a second language.

CLA BA degrees require 18 upper-division (3xxx-level or higher) credits outside the major designator. These credits must be taken in designators different from the major designator and cannot include courses that are cross-listed with the major designator. The major designator for the Chemistry BA is CHEM.

Students may receive no more than one degree from the Department of Chemistry: a BA or a BS or a minor.

All incoming CLA freshmen must complete the First Year Experience course sequence.

Mathematics

Take 3 courses for 12 credits.
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1572H - Honors Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2573H - Honors Calculus III (4.0 cr)

Physics

Take 2 courses for 8-10 credits.
PHYS 1201W *{Inactive}*[PHYS, WI] (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1202W *{Inactive}*[PHYS, WI] (5.0 cr)

or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Preparatory Courses
Take 6 courses for 13 credits.
CHEM 3101 - Introductory Analytical Chemistry Lecture (3.0 cr)
CHEM 3111 - Introductory Analytical Chemistry Lab (2.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Major Courses
Take 6 courses for 19-20 credits.
CHEM 2301 - Organic Chemistry I (3.0 cr)
or CHEM 2331H - Honors Elementary Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
or CHEM 2304 *{Inactive}*(3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
or CHEM 2312H - Honors Organic Lab (5.0 cr)
CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
CHEM 4502 - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)
CHEM 4701 - Inorganic Chemistry (3.0 cr)

Advanced Chemistry Laboratory Electives or Research
Take two advanced chemistry electives for a total of 4-9 credits. Only one directed study may count (CHEM 2094 or 4094W or 4094V), and must be taken for a minimum of 2 credits. If directed study is chosen, honors students should enroll in 4094V.
Take 2 or more course(s) from the following:
- CHEM 4111W - Modern Instrumental Methods of Chemical Analysis Lab [WI] (2.0 cr)
- CHEM 4311W - Advanced Organic Chemistry Lab [WI] (4.0 cr)
- CHEM 4511W - Advanced Physical Chemistry Lab [WI] (3.0 cr)
- CHEM 4711W - Advanced Inorganic Chemistry Lab [WI] (3.0 cr)
- CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
- CHEM 4423W - Foundations of Chemical Biology Laboratory [WI] (2.0 cr)
- CHEM 2094 - Directed Research (1.0 - 3.0 cr)
- CHEM 4094W - Directed Research [WI] (1.0 - 5.0 cr)
- CHEM 4094V *{Inactive}*[WI] (1.0 - 5.0 cr)

Electives
Take 3 or more credit(s) from the following:
- CHEM 3xxx
- CHEM 4xxx
- CHEM 5xxx
- BIOL 3xxx
- BIOL 4xxx
- BIOL 5xxx
- BIOC 3xxx
- BIOC 4xxx
- BIOC 5xxx
- GCD 3xxx
- GCD 4xxx
- GCD 5xxx
- CHEN 3xxx
- CHEN 4xxx
- CHEN 5xxx
- MATS 3xxx
- MATS 4xxx
- MATS 5xxx
- MATH 3xxx
- MATH 4xxx
- MATH 5xxx
- PHYS 3xxx

•PHYS 4xxx
•PHYS 5xxx
•PUBH 3xxx
•PUBH 4xxx
•PUBH 5xxx
•STAT 3xxx
•STAT 4xxx
•STAT 5xxx

Upper Division Writing Intensive within the major

Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

•CHEM 4111W - Modern Instrumental Methods of Chemical Analysis Lab [WI] (2.0 cr)
•CHEM 4311W - Advanced Organic Chemistry Lab [WI] (4.0 cr)
•CHEM 4511W - Advanced Physical Chemistry Lab [WI] (3.0 cr)
•CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
•CHEM 4423W - Foundations of Chemical Biology Laboratory [WI] (2.0 cr)
•CHEM 4711W - Advanced Inorganic Chemistry Lab [WI] (3.0 cr)
•CHEM 4094W - Directed Research [WI] (1.0 - 5.0 cr)
•CHEM 4094V *{Inactive}*[WI] (1.0 - 5.0 cr)