Duluth Campus

Chemistry B.A.

Chemistry and Biochemistry, Swenson College of Science & Engineering

Swenson College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2013
- Required credits to graduate with this degree: 120
- Required credits within the major: 54 to 58
- Degree: Bachelor of Arts

Chemistry is the study of matter and the physical changes that matter undergoes. Chemical reactions occur every day and in every aspect of life: respiration, metabolism and growth in living systems, combustion in cars and heating plants, pharmaceutical and polymer production, and the conversion of raw materials to usable products.

Chemistry is an important and central subject. Students who are interested in health sciences such as medicine, pharmacy, dentistry, and related fields need to take several semesters of chemistry. Students who like scientific and technical subjects, and who have a solid math and science background from high school, are best prepared to major in chemistry.

Students completing the B.A. in chemistry generally plan to use chemistry as a study field that complements other areas such as law, library science, technical writing, public relations, or sales. B.A. students are encouraged to participate in undergraduate research. The major also provides a strong foundation for students planning to go to professional schools, such as medical or pharmacy school.

Honors Requirement: Qualified majors may apply after the first semester of their sophomore year. Participants choose a research adviser and complete two semesters of effort on a jointly developed project. Written reports and an oral presentation of the research are also required.

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.

Required prerequisites

Introductory Requirement (1 cr)

Transfer students with 24 or more credits and current students who change from a B.S. degree or change colleges may request to be waived from this requirement. New first-year students with 24 or more PSEO credits may request to be waived from this requirement.

UST 1000 - Learning in Community (1.0 - 2.0 cr)

General Requirements

The Board of Regents, on recommendation of the faculty, grants degrees from the University of Minnesota. Requirements for an undergraduate degree from University of Minnesota Duluth include the following:

1. Students must meet all course and credit requirements of the departments and colleges or schools in which they are enrolled including an advanced writing course. Students seeking two degrees must fulfill the requirements of both degrees. However, two degrees cannot be awarded for the same major.
2. Students must complete all requirements of the Liberal Education Program.
3. Students must complete a minimum of 120 semester credits.
4. At least 30 of the last 60 degree credits earned immediately before graduation must be awarded by UMD.
5. Students must complete at least half of their courses at the 3xxx-level and higher at UMD. Study-abroad credits earned through courses taught by UM faculty and at institutions with which UMD has international exchange programs may be used to fulfill this requirement.
6. If a minor is required, students must take at least three upper division credits in their minor field from UMD.
7. The minimum cumulative UM GPA required for graduation will be 2.00 and will include only University of Minnesota coursework. A minimum UM GPA of 2.00 is required in each UMD undergraduate major and minor. No academic unit may impose higher grade point standards to graduate.
8. Diploma, transcripts, and certification will be withheld until all financial obligations to the University have been met.

Information current as of March 28, 2024

Program Requirements

1. Students who earn a B.S. in biochemistry and molecular biology (BMB) will have met the requirements for the B.A. in chemistry and for the chemistry minor. However, neither the BMB major/B.A. chemistry major combination nor the BMB major/chemistry minor combination satisfies the college degree requirement for a second major or minor. The B.S. BMB major/B.S. chemistry major combination does satisfy the college degree requirement.

First Year (20 cr)

High school algebra and high school chemistry are required for CHEM 1153, 1154, and 1161. This schedule presupposes placement in MATH 1296 as the first course.

MATH 1296 - Calculus I [LE CAT, LOGIC & QR] (5.0 cr)
MATH 1297 - Calculus II [LOGIC & QR] (5.0 cr)
CHEM 1161 *{Inactive}*[LE CAT4, NAT SCI] (5.0 cr)
or CHEM 1153 - General Chemistry I [LE CAT, NAT SCI] (4.0 cr)
CHEM 1154 - General Chemistry Lab I [LE CAT, NAT SCI] (1.0 cr)
CHEM 1162 *{Inactive}*(5.0 cr)
or CHEM 1155 - General Chemistry II (4.0 cr)
CHEM 1156 - General Chemistry Lab II (1.0 cr)

Second Year (20-22 cr)

CHEM 2541 - Organic Chemistry I (3.0 cr)
CHEM 2543 - Organic Chemistry I Laboratory (1.0 cr)
CHEM 2542 - Organic Chemistry II (3.0 cr)
CHEM 2544 - Organic Chemistry II Laboratory (1.0 cr)
Take the following course pair or course:
CHEM 2222 - Quantitative Analysis (3.0 cr)
CHEM 2223 - Quantitative Analysis Laboratory (1.0 cr)
or CHEM 2242 *{Inactive}*(4.0 cr)
Take one of the following course pairs (PHYS 2013/14 and 2015/16 are strongly encouraged):
PHYS 1001 - Introduction to Physics I [LE CAT, NAT SCI] (5.0 cr)
PHYS 1002 - Introduction to Physics II (5.0 cr)
or PHYS 2013 - General Physics I [LE CAT, NAT SCI] (4.0 cr)
PHYS 2014 - General Physics Lab I [NAT SCI] (1.0 cr)
PHYS 2015 - General Physics II (4.0 cr)
PHYS 2016 - General Physics Lab II (1.0 cr)

Third Year (8 cr)

CHEM 3322 - Biochemistry (3.0 cr)
CHEM 3324 - Biochemistry Laboratory (1.0 cr)
or CHEM 4352 - Biochemistry II (3.0 cr)
CHEM 4363 - Biochemistry Laboratory (2.0 cr)
CHEM 4633 *{Inactive}*(1.0 cr)
CHEM 4634 *{Inactive}*(3.0 cr)
or CHEM 4642 - Quantum Mechanics and Spectroscopy (3.0 cr)
CHEM 4644 - Quantum Mechanics and Spectroscopy Laboratory (1.0 cr)

Fourth Year (3 - 5cr)

CHEM 3432 - Descriptive Inorganic Chemistry (3.0 cr)
or CHEM 4352 - Biochemistry II (3.0 cr)
CHEM 4363 - Biochemistry Laboratory (2.0 cr)
or CHEM 4642 - Quantum Mechanics and Spectroscopy (3.0 cr)
CHEM 4644 - Quantum Mechanics and Spectroscopy Laboratory (1.0 cr)

Advanced Writing Requirement (3 cr)

WRIT 31xx