Chemistry probes the fundamental concepts of nature and helps us understand the world around us. It deals with all substances at the molecular level: their composition, their properties, and how they are transformed into new substances. Chemistry is a central science of great importance to society. It provides a broad range of opportunities in many specialized fields, including biotechnology, polymer chemistry, environmental chemistry, materials chemistry, and medicine. After graduating with a bachelor’s degree, many chemistry majors go on to graduate or professional schools to pursue advanced degrees. Other graduates find employment in industry, education, or government.

Degree Requirements
Students must complete at least 120 credits to graduate, including 36 credits in the major. The chemistry curriculum includes courses in chemistry, physics, mathematics, and the liberal arts. Specific degree requirements are listed under Required Courses.

- Chemistry lecture/lab (32 cr)
- Advanced chemistry lab elective (2 cr)
- Directed research (2 cr)

**Total credits in chemistry (36 cr)**

- Mathematics (12 cr)
- Physics (8 cr)
- Advanced technical electives (3 cr)
- Introductory biology (4 cr) (Biol 1009 is recommended)
- Composition (4 cr)
- Liberal education plus electives (54 cr)

**Total credits for degree (120 cr)**

All required courses must be taken A-F. A grade of C- or better is required in all technical courses. By selecting appropriate electives it is possible for a student to construct a program with emphasis in special interest areas, such as bioscience, chemical physics, education, environmental chemistry, and materials chemistry. Other special interest areas are also possible and chemistry advisers can be helpful in designing such programs. It is also possible for student to do dual degrees but this option requires careful course planning and should be discussed as early as possible with a chemistry advisor.

All chemistry majors are advised by faculty and staff in the chemistry advising office. Each student plans his or her degree program by submitting One Year Plans in consultation with an adviser.

Required Courses

- Biol 1009—General Biology (4 cr) (not required but is recommended)
- Chem 1021—Chemical Principles I (4 cr)
- Chem 1022—Chemical Principles II (4 cr)
- Chem 2101—Introductory Analytical Chemistry Lecture (3 cr)
- Chem 2111—Introductory Analytical Chemistry Lab (2 cr)
- Chem 2301—Organic Chemistry I (3 cr)
- Chem 2302—Organic Chemistry II (3 cr)
  - Chem 2311—Organic Lab (4 cr)
  - Chem 3501—Physical Chemistry I (3 cr)
  - Chem 3502—Physical Chemistry II (3 cr)
How do I declare a chemistry major?

You will be required to declare a major by the time you have completed 60 credits.

1. Talk with someone from the department: make an appointment in 135 Smith Hall (624-8008), to learn about the chemistry major's requirements.

2. When you decide upon a chemistry major and have completed necessary requirements (potential majors must have lower division requirements completed prior to filling out a Major Program form), meet with the appropriate person from the department to complete a Major Program form and One Year Program Plan.

3. Bring a copy of the form to your CLA student community.

4. If you decide to change your major, contact your CLA student community to learn more about your new major's declaration process.

Skills

Chemistry majors develop skills that are applicable to a wide variety of careers. These skills include:

- Knowledge of chemistry, appropriate lab techniques, and broad science knowledge
- Problem-solving skills
- Critical and analytical thinking skills
- Attention to detail
- Ability to work independently and as part of a team

Employment

Common areas of employment for this major include but are not limited to:

- Science—research, environmental analysis, quality control, product development positions
- Health Care (some positions require education beyond the bachelor's degree)—medicine, pharmacy, health technician, nursing, toxicology, dentistry, veterinary medicine
- Communication—technical writers
- Government—public information, campaigns, research, public office, federal programs
- Business—marketing, human resources, sales, consulting, recruiting
- Education—teaching, research, student affairs
- Law—patent law, regulatory affairs

Today's workplace requires individuals with interpersonal skills, the ability to communicate effectively, an ability to solve problems, and adaptability. CLA graduates find that they are well-prepared in all these areas and that their education—especially when combined with experience gained through internships, volunteer positions, past jobs, and other collegiate involvement—makes them competitive.

The Career & Community Learning Center provides students with the tools to identify and pursue potential careers. An extensive resource room, the CLA Link website, career courses and workshops, and a helpful staff are just some of the ways we can help.
About the chemistry major:
Undergraduate Advising
135 Smith Hall
(612) 624-8008
http://www.chem.umn.edu

About CLA requirements, graduation, and other information about majors:
CLA Natural Sciences Student Community
B-18 Johnston Hall
(612) 624-6044
http://natsci.cla.umn.edu
natsci@class.cla.umn.edu

or
CLA Martin Luther King, Jr. Program
19 Johnston Hall
(612) 625-2300
http://www.mlk.umn.edu/
mlk@class.cla.umn.edu

About careers, internships, and community learning opportunities in this major and others:
Career and Community Learning Center
135 Johnston Hall
(612) 624-7577
www.cclc.umn.edu
cclc@class.cla.umn.edu

About graduation with honors:
Students interested in graduating with honors should contact:
CLA Honors Division
115 Johnston Hall
(612) 624-5522
www.cla.umn.edu/honors/
honors@class.cla.umn.edu

For more information

Notes:

Remember!

You have not declared a major until you have:

- completed a Major Program Form with your major adviser
- filed a copy with the major department
- filed a copy with your CLA student community
- be sure to keep a copy for yourself