

Chemistry

Bachelor of Arts Degree

Bachelor of Science Degree

Contact

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Admission Requirements

(In years as established by the college)

A high school diploma with the following specific courses:

- 4 English
- 2 Algebra I and II
- 1 Geometry
- 1/2 Trigonometry
- 2 Lab Science (including biology)
- 2 History/Social Studies
- 2 Foreign Language
 (same language or two years of American Sign Language)
 Academic electives (to equal at least 17 credits)

To ensure current mathematical skills, students should take a mathematics course during their senior year of high school.

Did You Know?

Examples of recent thesis projects by chemistry majors: "Investigations of Transition Metal Biochemistry as Exhibited Through Reactions with Antirheumatic Gold Compounds" by Benjamin Briggs, now at Dartmouth University Medical School; "DFT Study of MoO₃ Defect Formation and Acrolein Hydrodeoxygenation" by Daniel Moberg, now a graduate student in chemistry at Cornell University; "Neutron Scattering to Characterize Micropore Structure in Mesoporous Silica SBA-15" by Brenna Walsh, now a graduate student in chemistry at McGill University.

College of Liberal Arts and Sciences

Program Description

The Department of Chemistry offers programs in analytical, inorganic, organic, materials and surface chemistry, wood/paper and physical chemistry. Understanding and using a variety of modern instruments and computers play an integral part in these programs. The chemistry curriculum affords an unusual opportunity for a wide choice of electives so majors can adapt the program to individual interests and goals. Scholarships are available for chemistry majors who plan a career in teaching. The department is large enough to provide excellent facilities and small enough for each chemistry major to receive personal attention. The Bachelor of Science degree in chemistry meets all the requirements for pre-medical, pre-dental and pre-veterinary programs.

Students fulfill the capstone general education requirements by participating in undergraduate research and writing a senior thesis.

Specialized Information

An important aspect of your training as a future chemist is learning the skills of research. Because chemistry is an experimental science, work in the laboratory is the method by which new areas of the field are discovered and contributions to society are made.

For classes that involve a laboratory, expect to spend several hours working in the laboratory or analyzing data you've collected. You'll be learning techniques that will serve you well as you develop your ability to ask good scientific questions and explore possible solutions. You'll also reinforce what you've learned in class and gain the ability to support the theory you've learned with an applied context.

In the chemistry lab, you'll learn how to analyze and interpret data; make accurate and precise measurements; use instruments; keep an accurate and complete laboratory notebook; handle chemicals and dispose of them safely; work independently or as part of a team; communicate your results orally or in writing; and synthesize, separate and characterize chemical compounds.

All of our chemistry majors conduct research with a faculty member and then write a thesis about their project. UMaine is the only university in the state that offers graduate programs in chemistry. Undergraduate chemistry majors gain unique and valuable experience working closely with graduate students and faculty in research labs. Many of our majors have been co-authors on scientific presentations and publications.

Associated Honor Societies and Student Organizations

The Department of Chemistry offers several scholarships to chemistry majors. The Hach Scholarship is the only one that has an application process and is aimed at students who are interested in a career in teaching. Current majors are automatically considered each spring for all the other awards, which are offered based on merit and academic standing (senior, junior, etc.). The exact funding of each scholarship ranges from several hundred dollars to \$6,000 annually.

Representative Courses

CHY 105 Majoring in Chemistry
CHY 121/123 Introduction to Chemistry/Laboratory
CHY 122/124 Molecular Basis for Chemical Change/Laboratory
CHY 242 Principles of Quantitative Analysis
CHY 251/253 Organic Chemistry I/Laboratory
CHY 252/254 Organic Chemistry II/Laboratory
CHY 393 Undergraduate Seminar in Chemistry
CHY 398 Undergraduate Research
CHY 399 Undergraduate Thesis
CHY 431 Structure and Mechanism in Biological Chemistry

CHY 471 Physical Chemistry I
CHY 475 Physical Chemistry III
CHY 491 Advanced Integrated Laboratory
CHY 443 Instrumental Analysis
CHY 450 Introduction to Molecular Modeling
CHY 453 Intermediate Organic Chemistry/Laboratory
CHY 461 Advanced Inorganic Chemistry
CHY 462 Organometallic Chemistry
CHY 472 Physical Chemistry II
CHY 483 Introductory Wood Chemistry

Career and Graduate Opportunities

In the simplest terms, chemistry is the science of matter. Anything that can be touched, tasted, smelled, seen or felt is made of chemicals. Chemists are the people who transform the everyday materials around us into amazing things. Some chemists work on cures for cancer, while others monitor the ozone protecting us from the sun. Still others discover new materials to make our homes warmer in the winter or new textiles to be used in the latest fashions. The knowledge gained through the study of chemistry opens many career pathways.

UMaine Graduate Programs

Master of Science in Chemistry
Doctor of Philosophy in Chemistry

About UMaine

The University of Maine, founded in Orono in 1865, is the state's premier public university. It is among the most comprehensive higher education institutions in the Northeast and attracts students from across the U.S. and more than 60 countries. It currently enrolls 12,000 total undergraduate and graduate students who can directly participate in groundbreaking research working with world-class scholars. Students are offered 88 bachelor's degree programs, 64 master's degree programs, 25 doctoral programs and one of the oldest and most prestigious honors programs in the U.S. The university promotes environmental stewardship on its campus, with substantial efforts aimed at conserving energy, recycling and adhering to green building standards in new construction. For more information about UMaine, go online (umaine.edu). Equal opportunity information also is available online (umaine.edu/eo).

How do I apply?

Visit go.umaine.edu for an application, as well as information about academics and life at UMaine.



Academic Programs 2011–12

The latest versions of the UMaine fact sheets are online (factsheets.umaine.edu). This fact sheet is intended for informational purposes only and is subject to change.

