

## Chemistry Department Mission and Goals

Chemistry is unique among the sciences because of the emphasis placed on developing a molecular-level understanding of scientific phenomena. The **mission** of the Department of Chemistry is to impart this molecular perspective to our students and equip them with the skills required to apply a molecular view to solve chemical problems.

The **goal** of the Department of Chemistry is to provide students with the chemistry content knowledge, laboratory skills, communication skills, and research experiences to prepare them for careers as scientific professionals. To accomplish this goal, the Department offers courses for students planning careers in chemistry, teaching, or medicine and other health-related fields, as well as for students who require a basic chemistry background for other majors or to fulfill a general education science requirement.

The Department offers three degrees at the undergraduate level; a BS degree in chemistry, a BS degree certified by the American Chemical Society (ACS), and a BA degree.

- The goal of the BS Chemistry degree is to prepare students for careers in chemical industry and technical areas that require a solid foundation in chemistry, or for medical, dental, pharmacy or other health-related professional programs.
- The goal of the ACS certified BS Chemistry degree parallels the BS degree and in addition this degree program prepares students for graduate school in chemistry and chemistry-related fields.
- The goal of the BA Chemistry degree is primarily to prepare students for a career in teaching. But it is also an excellent choice for students who want to complete a double major.

### Program Learning Objectives

The objectives for all three chemistry degree programs are based on the curricular guidelines established by the ACS for chemistry content and development of student skills.\* The program learning objectives are:

1. Students will develop and apply their understanding of chemical principles to formulate and solve problems in the classroom and the laboratory using appropriate information and approaches. (Chemical principles include stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics, equilibria, kinetics.)
2. Students will demonstrate an understanding of the synthesis, analysis, and chemical and physical properties of small molecules and macromolecules (e.g. polymers, biomolecules, nanomaterials).
3. Students will use appropriate approaches to model and interpret experimental data and chemical phenomena, including quantitative and computational methods.
4. Students will design, conduct, and analyze experiments, and demonstrate knowledge of safe and ethical techniques for handling chemicals and hazardous materials.
5. Students will communicate chemical knowledge clearly and concisely through written reports, oral presentations, and accurate records of their laboratory work.
6. Students will search, interpret, and manage information in the chemical literature.
7. Students will develop leadership and team skills by collaborating with peers/faculty in classrooms and laboratory settings.
8. Students will develop an understanding of professional and ethical standards, including the responsible treatment of data, citation of others' work, and the impact of chemistry in contemporary societal and global issues.

[\*ACS Guidelines and Evaluation Procedures for Bachelor's Degree Programs]