Major in Chemistry

Chemists study the atomic and molecular structure of physical matter and analyze how it changes. More specifically, they investigate how basic atomic and molecular components are combined and can be manipulated to produce useful or improved products. They also develop methods to measure atomic and molecular properties and their interactions enabling insight into a range of processes from mining to clinical diagnostics. Chemistry majors develop a solid foundation in general chemistry and mathematics followed by course work in organic chemistry, analytical chemistry, physical chemistry, inorganic chemistry, biochemistry, and physics. The curriculum is rounded out by courses in the liberal and communications arts.

Chemistry majors are encouraged to participate in undergraduate research. Ample opportunities exist for undergraduate students to become involved in ground-breaking research in the laboratories of individual faculty members. Students have access to state-of-the-art equipment in faculty laboratories and in the Central Instrument Facility including NMR, FTIR, UV/Vis, fluorescence, and mass spectrometers, vacuum lines, x-ray diffractometers and many more. Undergraduate research is strongly encouraged for any student considering a career in chemistry and many students complete supervised research for academic credit.

Learning Outcomes

Chemistry students will:

• Organize, critically evaluate, and present chemical information coherently through oral and written discourse
• Upon obtaining a Bachelor of Science degree in chemistry, demonstrate contemporary skills and knowledge necessary for entry-level positions in chemical industry and allied fields, or for admission to a graduate or professional school
• Demonstrate original research skills, namely the ability to plan investigations allowing them to resolve research questions, conduct such theoretical and/or laboratory experimentation, solve problems arising in such situations and interpret and communicate results

Potential Occupations

Chemists are employed in a vast array of professional fields in private industry, government, and education. Chemists work in research and development, analysis and testing, consulting, industrial quality control and assurance, environmental resource management, and forensics. Principal employers are petrochemical firms, biotechnology firms, consumer chemical firms, environmental testing laboratories, pharmaceutical companies, agricultural companies, governmental regulatory agencies, governmental and educational research laboratories, and manufacturing firms. Many chemists are also engaged in startup companies. Chemistry is also an excellent major for those preparing for careers in veterinary medicine and the health professions. Students whose career goals involve teaching at the secondary school level have the opportunity to complete the teacher licensure program through the School of Education (http://soe.chhs.colostate.edu).

Many possible occupations for chemists include, but are not limited to: agricultural chemist, air and water quality analyst, biochemical technician, chemical sales and marketing representative, clinical chemist, consultant, educator, forensic analyst, laboratory technician/bench chemist, materials analyst, patent examiner, pharmaceutical chemist, polymer technician, technical writer, and toxicologist.

Concentrations

• ACS Certified Concentration
• Non-ACS Certified Concentration