What can I do with a major in...

Chemistry

We often call chemistry the "central science" because it is the study of matter and the changes it undergoes. That’s a broad statement! It turns out, chemistry plays an important role in connecting the physical sciences, which include chemistry, with the life sciences and applied sciences such as oceanography and human biology and with engineering such as chemical engineering and materials science.

The chemistry major builds skills in a number of areas that are highly valued in the marketplace today: research, critical thinking and writing, and collaborative problem solving. Chemistry majors go on to have successful careers in many areas, from academics, politics, government, industry, publishing, research and development (R&D), education, medicine, environmental protection, and much more. Chemists work with matter at a fundamental, molecular level—its composition, properties, and transformation into new substances. They are interested in molecular structure, the properties of materials, and in reactions that convert one material into another. Chemistry is a central science because it significantly impacts many other fields including medicine, materials science, genetics, biology, pharmacy, food science, and environmental science. A bachelor’s degree in chemistry is a minimum educational requirement (research assistant, analyst) while many research jobs require a master’s degree or Ph.D.

INDUSTRIES

- K-12 Education
- Biotechnology
- Consulting
- Federal government
- Food production
- Healthcare
- Higher education
- Industrial products
- Manufacturing
- Packaging
- Petroleum
- Pharmaceuticals
- Pollution Control
- Water treatment

EMPLOYERS

- 3M
- Apex International
- Appvion, Inc.
- Aveda
- Beckman Coulter
- Brady Corporation
- Bostik, Inc.
- Cargill
- Ecolab
- H.B. Fuller
- Hawkins, Inc.
- Land O’ Lakes
- Lube-Tech
- Mayo Clinic
- Memorial Blood Centers
- NatureWorks LLC
- Pace Analytical
- SC Johnson
- Sherwin Williams
- Vascular Solutions
- Xcel Energy

TECHNICAL SKILLS

- Advanced and Basic Chemistry Laboratory Techniques
- Biology Laboratory Techniques
- ChemDraw
- Excel
- LoggerPro
- Mathematica
- MATLAB

CSE Career Outcomes

Average Starting Salary: $50,850*

Post-graduation Outcomes:*
POSSIBLE POSITIONS

- **Analytical chemist:** Analyze and troubleshoot the exact composition of substances and the purity of raw materials and finished projects. They may monitor air and water pollution as well as food and drug purity.
- **Environmental chemist:** Collect samples of water, soil and air to test. Record findings and construct reports to share with team members, employers or clients. Set up and maintain the equipment used to gather and measure data.
- **Formulation chemist:** Work mainly in a laboratory setting, adjusting chemical compounds and recording information to test and develop pharmaceuticals, health products, foods, cosmetics and cleaning products.
- **Lab technician/analyst:** Conduct analytical or lab-based tests for quality assurance, safety inspection, regulatory adherence, environmental impact or sample testing.
- **Pharmacologist:** Conduct research on the effects of substances and the formulation of drugs.
- **Polymer chemist:** Deals with the nature and structure of polymers. A typical application of polymer chemistry might be the synthesis of materials for industrial or commercial applications.
- **Process engineer:** Develop new industrial processes and design new process plants and equipment or modifying existing ones. Equipment may be used to change raw materials into products such as petrol, paper, pharmaceuticals, fertilizers, food, plastics, synthetic fibers and paint.
- **Quality control engineer:** Monitors the manufacturing of products to ensure quality standards are maintained.
- **Research & Development chemist:** Work in laboratories conducting tests and notating the reactions of different chemical compounds. Utilize chemicals, chemical compounds and chemical processes to create new products and technologies.
- **Research assistant:** Uses chemistry and research techniques to discover new knowledge or develop new technologies.

**Some of these positions may require an advanced degree.**

GET INVOLVED

- Alpha Chi Sigma
- American Chemical Society
- CSE Ambassadors
- CSE International Ambassadors
- Engineers Without Borders
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers
- National Society of Black Engineers
- Science and Engineering Student Board
- Society of Asian Scientists and Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers

RESOURCES

- American Academy of Forensic Scientists: [aafs.org](http://aafs.org)
- American Association for the Advancement of Science: [aaas.org](http://aaas.org)
- American Chemical Society: [chemistry.org](http://chemistry.org)
- American Institute of Chemists: [theaic.org](http://theaic.org)
- Association for Women in Science: [awis.org](http://awis.org)
- Association of Consulting Chemists and Chemical Engineers: [chemconsult.org](http://chemconsult.org)
- Biohealthmatic: [biohealthmatics.com](http://biohealthmatics.com)
- Biospace: [biospace.com](http://biospace.com)
- Chemistry & Industry Magazine: [ww1.chemind.org](http://ww1.chemind.org)
- Department of Chemistry: [chem.umn.edu](http://chem.umn.edu)
- Federal Government Jobs: [usajobs.gov](http://usajobs.gov)
- Federation of American Scientists: [fas.org](http://fas.org)
- Geochemical Society: [geochemsoc.org](http://geochemsoc.org)
- Medzilla: [medzilla.com](http://medzilla.com)
- National Academy of Science: [nas.edu](http://nas.edu)
- National Science Foundation: [nsf.gov](http://nsf.gov)
- National Science Teachers Association: [nstaa.org](http://nstaa.org)
- Science Magazine: [sciencemag.org](http://sciencemag.org)
- Society of Chemical Industry: [soci.org](http://soci.org)
- Society of Environmental Toxicology and Chemistry: [setac.org](http://setac.org)

*See the Major Binders available in the CSE Career Center’s Resource Center for more information about this major and career.*

*Salary and Career Outcomes gathered from the 2016-2017 CSE Graduation Survey*

*Post-graduation outcomes reflect the percentage of students who were employed full-time in their field or were enrolled in a graduate program. For detailed starting salary information see the CSE Career Center website.*