

The background features a series of concentric circles in light gray, some solid and some dashed, creating a sense of depth and movement. A large, solid blue oval is positioned in the center, serving as a container for the text. A thick, dark gray curved line sweeps across the lower-left portion of the blue oval.

Chemistry Computers

General Chemistry Discipline

Product development

Process development

Analysis

Testing

Biotechnology (using living organisms or cell processes to make useful products)

Consulting

Quality assurance/Quality control

Management

Environmental analyses

General Chemistry Discipline Employers

Government:

- U.S. Food and Drug Administration
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture
- National Institutes of Health
- Public health departments

Industries:

- chemical, pharmaceutical, biotechnology, food, feed, cosmetics, agricultural, environmental, petroleum, consumer products

Private research labs and organizations

Colleges and universities

Consulting firms

General Chemistry Discipline Strategies

Develop strong verbal, written, teamwork and problem-solving skills.

Choose courses with laboratory components to build experimental and instrumentation skills.

Gain experience in area of interest through internships, research with professors and/or complete a senior research project.

Consider taking a course in grant writing.

Earn master's degree in chemistry for advanced positions, greater responsibility and higher pay.

Obtain Ph.D. to direct research projects and lead research teams.

Enroll in undergraduate research early in your college career.

Chemical Engineering

Bulk chemicals (mass produced large quantities)

Fine chemicals (custom-produced small quantities)

Consumer products

Biotechnology

Pharmaceuticals

Electronics

Environmental safety and health

Fuels and energy conversion

Materials

Chemical Engineering Employers

Government:

- U.S. Department of Energy
- U.S. Environmental Protection Agency
- U.S. Nuclear Regulatory Commission
- U.S. Department of Agriculture

Industries:

- agrichemicals, industrial bulk and fine chemicals, food, biotechnology, pharmaceutical, cosmetics, environmental textiles, petroleum, consumer products, automotive, pulp and paper, rubber, electronics, plastics, energy

Private research labs and organizations

Chemical Engineering Strategies

Discipline combines chemistry and engineering to solve problems involving the use or production of chemicals.

Consider double majors in chemistry and engineering.

Develop exceptional communication and interpersonal skills for work on multidisciplinary teams. Attention to detail is crucial.

Pursue experimental design, data interpretation and problem solving competence through coursework and research with professors.

Seek internship or co-op experiences in the chemical engineering field.

Join professional associations such as American Institute of Chemical Engineers to maintain current knowledge of opportunities in the field.

Research Fundamentals of Engineering (FE) exam requirements, as this exam is typically the first step in becoming a Professional Engineer (PE).

Consider a concentration in Sustainability to pursue field in Green (or Sustainable) Chemistry.

General Chemistry Information

Undergraduate degree is sufficient for entry-level positions such as lab coordinator, research assistant, product testing or analysis, technical sales or service representative.

Maintain high grade point average and secure strong recommendations for graduate school admission.

Master's degree is sufficient for most applied research positions, industrial work and some community college teaching.

Ph.D. degree required for university teaching and advanced positions in management and research and development. Postdoctoral experience may be required for research positions in industry, universities and government.

In the United States, doctoral students typically receive full tuition waivers and annual salaries to attend graduate school because there is a strong need for Teaching Assistants in General Chemistry classes. There is also federal and industrial monetary support available for research.

Develop strong computer, mathematics and science skills/knowledge. Consider electives in computer science, engineering, business, public speaking and writing.

Obtain part-time, volunteer, co-op, internship and/or research opportunities with professors to gain relevant experience.

Develop contacts at government laboratories, research organizations or in industry. Schedule informational interviews to learn about the profession and specific career paths.

Read scientific journals to stay current on relevant issues in the field and join related professional organizations.