

Chemistry

Chemists study the composition and transformation of substances. Trained to think both analytically and creatively, chemists solve practical as well as research problems. Chemistry has been called “the central science” because of its impact on and connection to all other scientific disciplines, from engineering to the life sciences.

A Bachelor’s degree in chemistry prepares graduates to apply fundamental analytic and problem-solving skills across a wide range of professions. This guide lists some of the specific skills acquired by students concentrating in chemistry and provides a glimpse of the many career paths open to them.

SKILLS & ABILITIES

Chemistry majors learn to observe nature closely, to ask questions about their observations, and then to develop experiments that will answer those questions. Chemists develop their imaginative abilities, through which they see qualitative relationships, and their quantitative skills. Graduates find these skills applicable to many career

paths. Both a research chemist in a pharmaceutical company and the editor at a scientific press, for example, would regularly need to maintain accuracy while applying knowledge creatively. A sampling of representative skills and abilities follows.

Analysis

Summarizing research findings
Attending to details
Analyzing data
Testing hypotheses
Developing theories
Clarifying problems
Identifying relationships between problems/solutions
Reasoning by analogy
Perceiving patterns/structures
Applying logic to problems
Evaluating data and results

Investigation

Remaining objective
Reviewing relevant data
Applying concepts
Utilizing formulae
Gathering information
Observing carefully
Asking questions
Designing experiments
Applying knowledge creatively

Technical Skills

Processing data
Solving quantitative problems
Calculating
Tabulating data
Sampling for surveys
Using laboratory equipment
Maintaining precision and accuracy

Communication

Writing for technical and non-technical audiences
Organizing and reporting data
Designing charts/graphs
Informing/explaining
Reporting results and conclusions orally and in writing
Presenting alternative explanations

OCCUPATIONAL OPPORTUNITIES

Chemistry graduates are prepared for a wide variety of careers in diverse settings such as research, education and government, or industry. Many go on to law, medical, business, or graduate schools. The following is a selected list of occupational opportunities for chemistry majors,

based on surveys of graduates of the University of Michigan and national data. Some of the occupations listed, such as art conservator, require additional skills or knowledge. Advanced study is generally expected for those occupations marked with a • on the following list.

Government

- Regulatory chemist
- Safety inspector
- Agronomist
- County health department inspector
- Water works supervisor
- Superfund quality assurance manager
- Federal Drug Administration inspector
- Sewer system supervisor
- Occupational Safety and Health Administration enforcement agent

Education/Training

- Professor
- Art conservator
- Science teacher
- Scientific editor
- Program director, professional society
- Museum education programs coordinator
- Laboratory manager

Industry

- Certified hazardous materials manager
- Pharmaceutical research chemist
- Application chemist
- Industrial hygienist
- Patent lawyer
- Chemical information specialist
- Market research analyst
- Sales manager
- Textile dyes analyst
- Environmental compliance officer
- Research scientist
- Polymer chemist
- Analytical chemist
- Web designer
- Programmer analyst

Health Care

- Primary care physician
- Toxicologist
- Environmental risk assessor
- Radiation health specialist
- Nurse-Anesthetist
- Pathologist
- Medical examiner
- Serologist
- Hospital administration
- Manager Information Systems
- Bioinformatics
- Agriculture

CURRICULUM REQUIREMENTS

Complete information on course offerings and requirements may be found in the LS&A Bulletin. Prerequisites include two years of chemistry and mathematics, one year

of physics, and completion of the LS&A language requirement, preferably in German.

FOR MORE INFORMATION

For information about choosing a career, about graduate/professional schools, internships, or job descriptions; and for library resources:

The Career Center
3200 Student Activities Building
764-7460
www.careercenter.umich.edu

For information about the concentration and degree requirements:

Attn: Carol
Department of Chemistry
1500 Chemistry Building
647-2858
www.umich.edu/~michchem/

LS&A Academic Advising Center
1255 Angell Hall
764-0332