

Majoring in

Chemistry

Description of Chemistry

What is chemistry?

Chemistry is the study the science of matter and energy.

What do chemistry majors study?

Chemistry majors learn about the composition and behavior of matter, including its micro- and macro-structure, the processes of chemical change, and the theoretical description and laboratory simulation of these phenomena. Chemistry is an experimental science; students design and perform experiments that lead to a better understanding of the physical world.

What skills do chemistry majors have?

Chemistry majors usually:

- Have good analytic reasoning skills;
- Enjoy and proficient in conducting experiments and working in a lab setting; and
- Have a proficiency in reading, writing, speaking, and memorizing.

What else do chemistry majors study?

Chemistry is considered a broad liberal arts major. This means that students take a variety of courses in addition to those required in the major. These courses help develop knowledge and skills that are applied throughout one's lifetime.

Liberal arts courses provide a background to strengthen critical thinking; problem solving; written, oral, and interpersonal communication; quantitative, analytical, and reasoning skills. These skills are considered very important for future success in the workplace. A strong liberal arts background also provides the foundation of an educated person.

Course Requirements

General education: About 60 credit hours of general education courses are required. These courses give a broad range of knowledge in math, behavioral science, foreign language, writing, arts, ethics, civilization, literature, and urban environment.

Major courses: A total of 37-49 credit hours of chemistry courses are required including several lab courses. Chemistry majors take courses such as:

- Biochemistry
- General chemistry
- Industrial applications of inorganic chemistry
- Inorganic chemistry
- Instrumental analysis
- Medicinal chemistry and drug design
- Organic chemistry
- Physical chemistry
- Quantitative analysis

Concentration: An additional 16-29 credits in one of five concentrations supplement the major courses. These concentrations include chemical science, professional chemist, professional chemist with honors, biochemistry, and chemical modeling.

Collateral courses: Approximately 22 credits or two semesters of physics with labs and advanced math courses are required of all chemistry majors. The exact courses vary depending on the concentration selected.

Electives: Generally, chemistry majors take fewer elective credits because their general education, major, concentration, and collateral courses give them enough hours to graduate.

Careers in Chemistry

The chemistry major provides a good background for entry to any number of professional fields. Some of these careers include:

- Crime lab analyst
- Environmental consultant
- EPA inspector
- Instrument technician
- Lab associate or technician
- Occupational safety and health inspector
- Pharmaceutical sales
- Quality control technician
- Research chemist
- Scientific technical sales representative
- Technical writer
- Wastewater treatment chemist

Many chemistry majors go on to graduate school. Some are admitted to medical, dental, veterinary, or other health sciences programs. Other students enter Ph.D. program in chemistry or related disciplines. The following are examples of careers that require an advanced degree.

- Biochemical toxicologist
- Chemical engineer
- Chemistry professor
- Dentist
- High school chemistry teacher
- Pharmacist
- Physician
- Physician assistant
- Physical therapist
- Thermochemical scientist
- Veterinarian

Next Steps

If you are interested in learning more about becoming a chemistry major at VCU, consider doing each of the following things. Check them off as you complete each step.

- Check out the VCU chemistry webpage at www.has.vcu.edu/che/.
- Take a general chemistry course.
- Attend an SAACS meeting (look for posters).
- Read about the major and its concentrations in the *Undergraduate Bulletin*.
- Review the chemistry major graduation worksheet with an academic advisor.
- Talk to one or more upper-level chemistry students about their major experience.
- Discuss the major with a chemistry professor, the Department Chair or Assistant Chair.
- Go to the Career Center to read about careers in chemistry.
- Go to the VCU bookstore and browse through the chemistry textbook section.
- Explore undergraduate research and internship possibilities through the Chemistry Department

and the Career Center.

- ☐ Check out the American Chemical Society's webpage at www.chemistry.org for information on topics related to the study of chemistry.

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