DEPARTMENT OF CHEMISTRY

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Chemistry is the central science: the foundation on which a variety of applied and nonapplied disciplines build. Chemistry deals with the composition, structure, and properties of substances and the changes they undergo. It is the study of the materials of which the entire universe is composed. Chemistry graduates will find an impressive array of options and exciting opportunities in fields such as basic research, environmental protection, instrumentation, the search for and synthesis of new therapeutic drugs, new product and process development, technical marketing, market research, forensic chemistry, teaching at any level, and information science. Moreover, an education in chemistry is valuable in health sciences such as medicine, pharmacology, clinical chemistry, and industrial hygiene. It can be useful as well in nontechnical areas such as advertising, journalism, patent law, banking, and investment counseling.

There are four distinct undergraduate curricula, each designed to meet a wide range of professional needs. The Professional Option is the curriculum of choice for students who are interested in practicing chemistry as a career, including graduate study for an advanced degree in chemistry or a related field. The degree is certifiable to the American Chemical Society. The General Chemistry Option provides a suitable foundation for those students needing a strong background in chemistry, but not necessarily aspiring to become professional chemists, such as those in education or chemical engineering. The Pre-Medical Option has been designed to serve the needs of those students interested in careers in medicine, pharmacy, dentistry, or other health related fields. The Forensics Option is a full-fledged chemistry degree that prepares students for a career in forensic science.

Students majoring in chemistry at U of I interact with an award-winning, distinguished teaching faculty. They have a unique opportunity to participate in undergraduate research in a nurturing environment where they work side by side with graduate students, postdoctoral fellows, and faculty members. Often, the research carried out by undergraduates results in publications in leading chemical journals. As a result of the strong research programs in the department, undergraduates have the opportunity in their courses to have hands-on experience with, or to acquire data from, modern sophisticated instrumentation such as FT nuclear magnetic resonance spectrometers, gas chromatographs interfaced with mass spectrometers, and laser Raman, infrared and ultraviolet spectrometers, in addition to the more classical techniques. Considerable use of computers is made in laboratory courses and as an aid to instruction. Because our students receive a first-class education, they are in demand by prospective employers and graduate schools.

The Chemistry Department trains its B.S. graduates to attain a high level of familiarity with

- basic chemical concepts and fundamental chemical processes;
- organic synthesis and characterization;
- analytical and environmental approaches and problem solving;
- inorganic, material, and nuclear chemical concepts and applications; and
- physical chemical aspects of natural systems and theoretical modeling thereof.

In the course of their studies, students will acquire the following:

- strong lab techniques and synthetic skills;
- familiarity with the chemical literature and relevant search techniques;
- an awareness of safety issues;
- communication skills;
- problem solving skills;
- basic research skills; and
- a sense of professionalism and competence.

M.S. and Ph.D. degrees are offered in chemistry with concentrations in analytical, inorganic, organic, and physical chemistry.

Entering graduate students (master's and doctoral candidates) are expected to demonstrate proficiency in chemistry by taking a series of four examinations in the areas of analytical (qualitative, quantitative, and instrumental), inorganic, organic (including qualitative organic analysis), and physical chemistry. These must be taken at the first offering after the student's arrival. These examinations are offered immediately before registration week of the fall and spring semesters. Questions are at an advanced undergraduate level.

Students who score at greater than the 50th percentile (established nationally) on a qualifying examination may begin with a 5000-level course in that area in their first semester and are given credit for the relevant 4000-level course (CHEM 4550, CHEM 4660, CHEM 4760, and/or CHEM 4960). Students who score below the 50th percentile on an examination will begin course work in the respective area: analytical, CHEM 4540 (the lab in this course may be bypassed by petition if the student can present evidence of adequate exposure; previous course at B level); CHEM 4950; CHEM 4630, CHEM 4730.

All candidates for the M.S. or Ph.D. degree in Chemistry are required to have teaching experience, here or elsewhere, as part of their training and will complete CHEM 5060 at their first opportunity on entering the program.

Chemistry graduate students will acquire advanced perspectives in analytical, inorganic, organic, and physical chemistry. They will gain a detailed understanding of the problems, challenges, and opportunities in their chosen subdiscipline, and an in-depth familiarity with the theoretical underpinnings and methodologies in their specific research area. Graduate students will also acquire skills in teaching, directing, and mentoring others.

Majors

- Chemistry (B.S.) (https://catalog.uidaho.edu/colleges-related-units/science/chemistry/chemistry-bs/)

Minors

- Chemistry Minor (https://catalog.uidaho.edu/colleges-related-units/science/chemistry/chemistry-minor/)

Graduate Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Chemistry. See the College of Graduate Studies (https://catalog.uidaho.edu/colleges-related-units/graduate-studies/) section for the general requirements applicable to each degree.

- Chemistry (M.S.) (https://catalog.uidaho.edu/colleges-related-units/science/chemistry/chemistry-ms/)
- Chemistry (Ph.D.) (https://catalog.uidaho.edu/colleges-related-units/science/chemistry/chemistry-phd/)