



Academic Learning Compact

Chemistry

Program Mission Statement

The mission of the Department of Chemistry is to provide excellent educational experiences in the classroom and in the laboratory at all levels and in all sub-disciplines of chemistry, with the goal to foster in our students a solid background in the foundational aspects, an understanding of the scientific methods of inquiry, and an appreciation of the significance and relevance of chemistry in daily life. We strive to offer programs of relevance that instill in our students the principles, motivation, comprehension, and the vision to prepare them for graduate school, medical school, or for careers in the chemical industry or in teaching. Toward these ends, the department has focused its resources to develop undergraduate curricula that inspire our students to gain a firm and operative understanding of the fundamental theories and principles in chemistry and biochemistry and to provide opportunities for faculty to mentor undergraduates in original research in order to enhance their theoretical, experimental, and creative abilities through hands-on laboratory experience, as well as other transformational learning experiences such as internships, attending and presenting at regional and national meetings and workshops. In designing our lecture and laboratory courses we strive to engage our students and to help them develop critical thinking, problem solving, and teamwork skills. Our faculty engage in self-reflection to ensure that the department achieves its goals effectively.

Student Learning Outcomes

Graduates will be able

Content/Discipline-Specific Knowledge/Skills

- Demonstrate a good understanding and retention of chemical principles and factual knowledge of analytical chemistry.
- Demonstrate a good understanding and retention of chemical principles and factual knowledge of organic chemistry.
- Demonstrate a good understanding and retention of chemical principles and factual knowledge of biochemistry.
- Demonstrate a good understanding and retention of chemical principles and factual knowledge of inorganic chemistry.
- Demonstrate a good understanding and retention of principles and factual knowledge of physical chemistry.
- Demonstrate a good understanding and retention of principles and operation of chemical instrumentation.
- Perform efficient, accurate and safe laboratory procedures and techniques.

Communication Skills

- Employ good record keeping practices in the laboratory.
- Write clear, concise and professional papers in a style consistent with accepted practices in chemistry.
- Extract and understand scientific content from the chemical literature.
- Demonstrate the ability to communicate effectively a chemistry research topic through a coherent and formal oral presentation, delivered to an audience of faculty and peers.

Critical Thinking Skills

- Demonstrate the ability to apply principles of chemistry to solve problems.
- Demonstrate the ability to apply mathematics to solve quantitative problems in chemistry.
- Infer appropriate conclusions plots, diagrams, and tables of experimental chemical data.
- Critique experiments performed by others that are designed to discover new knowledge and present/describe alternate approaches.

Assessment Approaches

Several direct and indirect measures of student learning are employed to assess mastery of the intended student learning outcomes. We use direct measures such as student responses to questions on examinations and quizzes, homework assignments, laboratory reports, assigned papers, and written and oral reports on senior projects. Indirect measures may include employer or alumni surveys, student perception surveys, job placement, and graduate school placement rates.