Student Learning Outcomes

College Mission Statement. Allegheny’s undergraduate residential education prepares young adults for successful, meaningful lives by promoting students’ intellectual, moral, and social development and encouraging personal and civic responsibility. Allegheny’s faculty and staff combine high academic standards and a commitment to the exchange of knowledge with a supportive approach to learning. Graduates are equipped to think critically and creatively, write clearly, speak persuasively, and meet challenges in a diverse, interconnected world.

Chemistry Program Description. Science is an integral part of a liberal arts education, and chemistry is a central science. The Chemistry Department offers its students not merely a collection of facts concerning the nature of chemical interactions, but it endeavors to develop in them an appreciation for the experimental vision and rigor necessary to assemble such knowledge, and it expects of them a critical understanding of the logic and theory that integrates these bits of information into a unified whole. In doing so, we attempt to provide the opportunity for intellectual and personal growth. We encourage our students to appreciate science as a human endeavor and invite them to participate in the work of science as they accumulate the necessary insights and laboratory skills. We seek to stimulate and develop within each individual those qualities that foster an enthusiasm for knowledge, an attitude of critical reasoning, and the attainment of lucid self-expression, all of which transcend the limited context of chemical science.

Student Learning Outcomes for Majors in Chemistry. Students who successfully complete a major in Chemistry are expected to be able to:

- Demonstrate a broad but thorough knowledge of the fundamental concepts of stoichiometry, atomic theory, structure and reactivity of elements and compounds, physical properties of matter, kinetics, equilibrium, and thermodynamics;
- Demonstrate extensive knowledge in at least or one more of the subdisciplines of chemistry: analytical chemistry, biochemistry, chemistry education, inorganic chemistry, organic chemistry, and physical chemistry;
- Develop questions that can be answered through chemical experimentation, design and conduct safe and appropriate experiments to answer such questions, interpret the results of these experiments, and effectively communicate these results in both oral and written forms;
- Critically analyze chemical data, hypotheses, results, theories, and explanations by applying both chemical knowledge and intuition.

Student Learning Outcomes for Minors in Chemistry. Students who successfully complete a minor in chemistry are expected to be able to:

- Demonstrate a broad knowledge of the many of the fundamental concepts of stoichiometry, atomic theory, structure and reactivity of elements and compounds, physical properties of matter, kinetics, equilibrium, and thermodynamics;
- Conduct safe and appropriate experiments to answer chemical questions, interpret the results of these experiments, and effectively communicate these results in both oral and written forms;
- Critically analyze chemical data, hypotheses, results, theories, and explanations by applying both chemical knowledge and intuition.
Student Learning Outcomes for All Students Completing Courses in Chemistry. All students who successfully complete a course in the Chemistry Department are expected to be able to:

- Demonstrate a knowledge of the fundamental concepts of stoichiometry, atomic theory, structure and reactivity of elements and compounds, physical properties of matter, kinetics, equilibrium, and thermodynamics relevant to specific contexts and applications;
- Effectively communicate this knowledge in both oral and written forms;
- Critically analyze chemical data, hypotheses, results, theories, or explanations by this chemical knowledge.

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