Program Student Learning Outcomes

College: Arts & Science
Program: Chemistry and Biochemistry, BS

Students completing an undergraduate program in chemistry should be able to:

- Demonstrate a knowledge of basic chemical facts and understand and apply major chemical concepts in at least three of the following areas:
  a) Analytical Chemistry,
  b) Biochemistry,
  c) Inorganic Chemistry,
  d) Organic Chemistry, and
  e) Physical Chemistry.

- Perform laboratory operations including:
  a) In conjunction with a faculty mentor, developing a testable hypothesis, designing, and carrying out experiments to explore chemical problems.
  b) Analyzing experimental results and performing appropriate computations.
  c) Drawing conclusions from experimental results.
  d) Exhibiting basic laboratory skills including:
    (1) The selection and use of appropriate techniques and instrumentation to analyze (qualitative and quantitative) chemical substances (e.g. balances, pH meters, volumetric glassware, electrochemical measures, atomic absorption).
    (2) The use of instrumentation to elucidate chemical structures (e.g. MS, NMR, IR, UV-Vis).
    (3) The separation of chemical mixtures by extraction and modern chromatographic methods.
    (4) The synthesis of chemical compounds.

- Demonstrate communication skills including:
  a) Constructing a useful and coherent laboratory notebook.
  b) Carrying out a chemical literature search
  c) Interpreting and critically evaluating selected chemical literature.
  d) Writing concise and coherent research reports.
  e) Presenting concise and coherent oral/poster reports.