**Bachelor of Science in Chemistry**

The Chemistry program objectives are based on the published American Chemical Society (ACS) guidelines for chemistry programs.

*Content Areas:* Students who complete the Chemistry major will demonstrate knowledge of:

1. Introductory chemistry: periodic table, chemical reactions, stoichiometry, gas laws, chemical thermodynamics, atomic structure, molecular structure, intermolecular forces, acids and bases, kinetics, chemical equilibrium, crystal structures, and electrochemistry.
2. Core foundational areas of chemistry: analytical, biochemistry, inorganic, organic and physical.
3. Specialized coursework: in the form of advanced elective courses and/or research experiences within or integrating between some of the above areas, to nurture maturity in the field.

*Laboratory Experience:* Chemistry is primarily an experimental science. The Chemistry major thus requires over 400 hours in the laboratory. While many of these lab courses are specific in topic, for students they represent an invaluable introduction and exposure to general laboratory environments and practices. Students will:

1. Understand the theory and learn to operate a wide variety of advanced biochemical instrumentation.
2. Use computers as information and research tools, including data acquisition, statistical analysis and molecular modeling.
3. Demonstrate safety in the laboratory and practice environmentally sound disposal methods.
4. Prepare effective presentations of laboratory data and be able to clearly communicate scientific information in the form of laboratory reports and oral presentations.

*Research Experience:* All students in the major will complete a senior research project as part of their capstone experience. Many students may choose to involve themselves in ongoing faculty research projects before that:

1. Demonstrate a practical understanding of a variety of contemporary scientific methods in the process of carrying out research project experiments.
2. Access and critically analyze literature and to derive chemical information through the use of molecular search engines such as SciFinder™.
3. Design experimental protocols, analyze data and demonstrate critical problem solving skills to troubleshoot.
4. Communicate findings in both oral and written presentations.

*Pre-Health Professions Concentration:*

1. Enhance students’ competitiveness for entry into health related professional school as evaluated by acceptance rates.