

CHAPTER 1 LEARNING OBJECTIVES

To satisfy the minimum requirements for this course, you should be able to:

Explain the following basic chemical principles:

- the differences between physical and chemical properties, between physical and chemical changes, and between extensive and intensive properties
- the characteristics of the three states of matter
- the differences between: a) substances and mixtures, b) elements and compounds, c) heterogeneous and homogenous mixtures, d) atoms and molecules

Use math to solve chemistry problems. Examples include:

- knowing the SI base units (Table 1.2) and the prefixes commonly used in the metric system (Table 1.3) and explaining the difference between a base unit and a derived unit
- knowing how to express a number in scientific notation and how to add, subtract, multiply and divide using scientific notation
- determining the number of significant figures in a measured quantity and knowing how to express a measured or calculated quantity using the correct number of significant figures
- knowing the difference between accuracy and precision
- converting between units using dimensional analysis
- converting temperatures among the Fahrenheit, Celsius, and Kelvin scales
- performing calculations involving density