109 Prerequisite Topics of Knowledge

It is expected that students taking CHEM 109 are comfortable with the following topics prior to the start of the semester.

Physical Properties: States of matter, temperature, mass, volume, density.

Measurements: SI units, unit conversion calculations, significant digits, uncertainty.

Chemical Elements: Periodic table, atomic symbols, atomic number, atomic structure, electron, proton, neutron, isotopes, average atomic mass.

Chemical Compounds: Empirical and molecular formulas, molar mass, gram-mole calculations, ions and ionic compounds, molecular compounds, nomenclature of common compounds.

Chemical Equations: Stoichiometry, balancing chemical equations, limiting and excess reagents, percent yield calculations.

Chemical Reactions: Precipitation reactions, acid-base reactions, oxidation-reduction reactions, oxidation numbers.

Chemical Solutions: Solubility of ionic compounds, solution concentration, molarity, dilution, stoichiometry in solutions, titrations.

Energy: Conservation of energy, energy transfer, heat, heat capacity, standard formation enthalpy, chemical reaction enthalpy, calorimetry, Hess's law.

For further information on these topics, see CHEMISTRY (Moore and Stanitski, 5th edition) chapters 1-4.