# BAKER COLLEGE
# STUDENT LEARNING OUTCOMES

**CHM 1410 Chemistry of Life**
**3 Semester Credit Hours**

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## Student Learning Outcomes and Enabling Objectives

1. Analyze dimensions of matter.
    a. Explain the International System of Units (SI).
    b. Convert between units of measurement.
    c. Explain how the mole is used in chemistry.
    d. Explain derived units of measurement.
    e. Calculate the concentrations of solutions in percent mass-volume, molarity, and molality.
2. Assess matter based on its atomic properties.
    a. Explain the structure and properties of atoms and molecules
    b. Explain the periodic nature of the table of elements and how it is used to organize information about elements.
    c. Identify the major chemical groups such as metals, non-metals, metalloids, halogens, noble gasses, representative elements, or transition elements.
    d. Describe the properties and laws that distinguish gasses, liquids, and solids from one another.
3. Predict elemental interactions.
    a. Explain how interactions of valence electrons determine chemical interactions
    b. Classify chemical bonds
    c. Use the nomenclature of inorganic compounds to write chemical formulas and name compounds.
    d. Determine the empirical formula, molecular formula, and molar mass of a compound.
    e. Describe the characteristics of acids and bases according to both the Bronsted-Lowry and Arrhenius definitions.
    f. Discuss equilibrium reactions.
4. Differentiate between the major categories of compounds involved in biochemical reactions.
    a. Discuss the basic structure, properties and nomenclature of organic compounds.
    b. Describe the basic composition, structure and function of the organic macromolecules.
5. Differentiate between the major biochemical pathways

a. Describe the structure and function of enzymes.
b. Describe the major pathways involved in energy transfer.
c. Describe the biochemical pathways of DNA replication, transcription, and translation.

## Big Ideas and Essential Questions

### Big Ideas

- Dimensional Analysis
- Classifying Matter
- Interactions of Matter
- Organic Macromolecules
- Biochemical Pathways

### Essential Questions

1. How do we measure natural phenomena?
2. How do we classify matter based on its characteristics?
3. Essential Question: How does matter interact in nature?
4. What is the role of carbon in living systems?
5. How do cells utilize chemical resources?

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These SLOs are not approved for experiential credit.

**Effective: Fall 2023**