CHAPTER 2
FUNDAMENTAL CHEMISTRY FOR MICROBIOLOGY

CHEMICAL BONDING

- Atoms can bind together to make molecules, which can join together to make cells
- There are three main types of chemical bonding: ionic, covalent, and hydrogen bonding

CHEMICAL BONDING

- Ionic bonds form when electrons are donated to or received by atoms
- In covalent bonds, electrons are shared by atoms
- In hydrogen bonds, positively charged hydrogen is attracted to negatively charged atoms

WATER

- Water has several properties that are important for physiological functions, including solubility, reactivity, and heat capacity

ACIDS, BASES, AND pH

- pH measures the acidity or alkalinity of a solution
- Acidity can be considered as the amount of free hydrogen ions (H^+) in a solution

BIOLOGICAL MOLECULES

- Biological molecules use carbon as the primary building block of their structures
- There are four biological molecules: carbohydrates, lipids, proteins, and nucleic acids
- The three-dimensional structure of a protein is directly related to the function of the protein
- ATP is the major energy molecule in biological systems