Chapter 2 – Water

2.1 Weak Interactions in Aqueous Systems

The following sub-sections are important:

* The Introduction
* Hydrogen Bonding Gives Water its Unusual Properties
* Water Forms Hydrogen Bonds with Polar Solutes
* Water Interacts Electrostatically with Charged Solutes
* Nonpolar Gases are Poorly Soluble in Water
* Nonpolar Compounds Force Energetically Unfavorable Changes in the Structure of Water
* Van der Waals Interactions are Weak Interatomic Attractions
* Weak Interactions are Crucial to Macromolecular Structure and Function
* Solute Affects the Colligative Properties of Aqueous Solutions

2.2 Ionization of Water, Weak Acids, and Weak Bases

The following sub-sections are important:

* The Introduction
* Pure Water is Slightly Ionized
* The Ionization of Water is Expressed by an Equilibrium Constant
* Weak Acids and Bases Have Characteristic Acid Dissociation Constants
* Titration Curves Reveal the pKa of Weak Acids

2.3 Buffering against pH changes in Biological Systems

The following sub-sections are important:

* Buffers are Mixtures of Weak Acids and Their Conjugate Bases
* Weak Acids or Bases Buffer Cells and Tissue against pH Changes