Chapter 6 – Enzymes

6.1 An Introduction to Enzymes

The following sub-sections are important:

* The Introduction
* Most Enzymes are Proteins
* Enzymes of Classified by the Reactions They Catalyzed

6.2 How Enzymes Work

The following sub-sections are important:

* The Introduction
* Enzymes Affect Reaction Rates, Not Equilibria
* Reaction Rates and Equilibria Have Precise Thermodynamic Definitions
* A Few Principles Explain the Catalytic Power and Specificity of Enzymes
* Weak Interactions Between Enzyme and Substrate Are Optimized in the Transition State
* Binding Energy Contributes to Reaction Specificity and Catalysis

6.3 Enzyme Kinetics as an Approach to Understanding Mechanism

The following sub-sections are important:

* The Introduction
* Substrate Concentrations Affect the Rate of Enzyme-Catalyzed Reactions
* The Relationship Between Substrate Concentration and Reaction Rate can be Expressed Quantitatively
* Kinetic Parameters are Used to Compare Enzyme Activities
* Many Enzymes Catalyze Reactions with Two or More Substrates
* Enzyme Activity Depends on pH
* Pre-Steady State Kinetics Can Provide Evidence for Specific Reaction Steps
* Enzyme are Subject to Reversible or Irreversible Inhibition

6.4 Examples of Enzymatic Reactions

* This section has way more detail than you are expected to know. All you need to know are the 6

classes of enzymes that are in the slides and the types of reactions they catalyze.

6.5 Regulatory Enzymes

The following sub-sections are important:

* The Introduction
* Allosteric Enzymes Undergo Conformational Changes in Response to Modulator Binding
* The Kinetic Properties of Allosteric Enzymes Diverge from Michaelis-Menten Behavior
* Some Enzymes Are Regulated by Reversible Covalent Modifications
* Phosphoryl Groups Affect the Structure and Catalytic Activity of Enzymes
* Multiple Phosphorylation Allow Exquisite Regulatory Control