

UNIVERSITY OF NAIROBI
SCHOOL OF BIOLOGICAL SCIENCES
SBL 204 – PROTEINS & ENZYMES

COURSE OUTLINE

PROTEINS

1. **Amino Acids** as building blocks
2. **Functional Diversity** of Proteins
4. **Structural Organization** – primary, secondary, tertiary and quaternary structures
5. **Effect** of pH, temperature, salts and metal ions on proteins
6. **Lipo-proteins & Glyco-proteins** - Structure and Functions
7. Collagen, Antibodies
8. **Protein Synthesis - Description**
9. **Protein Export & Secretion**

ENZYMES

1. **Nomenclature & Classification of 6** major groups and types of reactions catalyzed
2. **Nature, Mechanism, Specificity and Properties** of enzymes
3. **Enzyme Models** - Lock & Key and Induced Fit hypothesis
4. **Activation energy & Enzyme Kinetics**
5. Effects of **Temperature, pH, enzyme & substrate** concentration on enzyme activity
6. **Enzyme Inhibitors** – Reversible and Irreversible inhibitors, Competitive and
Non-competitive Inhibition
7. **Regulation** of enzyme activity - feed back mechanism, allosteric effects
8. **Multi-enzyme** Systems – Homotropic and Heterotropic
9. **Iso-enzymes**
10. Classification, Structure and Role of major **Co-enzymes (Vitamins) and Co-factors**
11. **Restriction Enzymes** - Definition, Mode of Action and Mechanism, Significance
12. **Toxic Proteins & Enzymes** – Cardiotoxins, Myotoxins, Neurotoxins
13. **Microbial Toxins & Enzymes** associated with **Invasiveness** of pathogens
14. Structure, Physiological importance and Function of **Peptide Hormones**
15. **Metabolic Regulation** – Insulin & Glucagon

REFERENCE

BIOCHEMISTRY, 3rd edition (2004), by S.C. RASTOGI.

PRINCIPALS OF BIOCHEMISTRY, (2004), Nelson D. L.

OUTLINES OF BIOCHEMISTRY, Eric Conn and Stumpf, (1980) or later edition

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