Changing lives through learning

Qualification Unit

This unit forms part of a regulated qualification.

Unit Title: Biological Principles for Pharmacy Technicians

Unit Reference Number: D/617/8902

Level: Three (3)

Credit Value: Four (4)

Minimum Guided Learning Hours: 25

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the structure and function of carbohydrates and lipids	1.1 Describe the **structure** of carbohydrates
	1.2 Explain the **function** of carbohydrates
	1.3 Describe the **structure** of lipids
	1.4 Explain the **function** of lipids
2. Understand the structure and function of proteins	2.1 Describe the **structure** of proteins
	2.2 Explain how proteins aid growth and repair
3. Understand the structure and function of enzymes	3.1 Describe the **structure** of enzymes
	3.2 Explain the **function** of enzymes
	3.3 Describe the **actions** of enzymes and coenzymes
4. Understand the structure and function of the human genome	4.1 Describe the **human genome**
	4.2 Explain the **structure** of DNA and RNA
	4.3 Explain the **function** of nucleic acids
	4.4 Describe the **causes** and **effects** of base sequence mutations on genetic variation and the functions of cells and tissues

Indicative Content	
LO1	**Carbohydrate structure:** Forms of mono- di and polysaccharides (simple ring, straight chain) formation and breakdown of glycosidic bonds, anabolism and catabolism **Carbohydrate function**: Energy source, storage, role in digestive health, respiration **Lipid structure:** Saturated, unsaturated fatty acids, triglycerides, phospholipids **Lipid function:** Energy sources, structural tissue components, insulation, physical protection
LO2	**Structure:** Essential and non-essential amino acids, formation of peptide bonds, formation of dipeptides and polypeptide chains (primary structure), basic secondary, tertiary and quaternary
LO3	**Structure:** Shape, active sites, simple lock and key, induced fit **Function:** Catalyst, inhibitor, activator **Actions:** Hypothesis of enzyme action, simple lock and key, properties of specificity, relevance of optimum conditions on rate of activity, causes and effects of denaturation
LO4	**Human genome:** Amount of base pairs, genes, chromosomes, types of Deoxyribonucleic acid (DNA) **Structure:** DNA and ribonucleic acids (RNA), including complementary base pairing, arrangement of genetic material and gene transmission in eukaryotic and bacterial cells **Function**: Storage and transmission of genetic information, role of DNA and RNAs in protein synthesis through transcription and translation **Causes:** Evolution, chemical, radiation **Effects:** Of beneficial, neutral and harmful base sequence mutations, missense, nonsense, insertion, deletion, frameshift, duplication, repeat expansions