THOMAS ADEWUMI UNIVERSITY COURSE OUTLINE		
Faculty	Computing and Applied Sciences	
Department	Biological Sciences	
Course Title	**ENZYME AND INTERMEDIARY METABOLISM**	
Year of Study	2	
Course Code	BCM 218	
Credit Hours	2	
Contact Hours	30	
Mode of Delivery	Classroom Lectures	
Mode of Assessment		**Weight %**
Continuous Assessment Final Examination		40% 60%
Total		100 %
Course Lecturers	**FAROHUNBI S.T.**	
Course Description	The course is expected to expose the students to the basics of enzyme action, catalysis, and mechanism of action as well as coenzymes and cofactors. The students will also teach the students the major metabolic pathways in carbohydrate, protein and fatty acids metabolism as well as DNA replication, transcription and protein synthesis	
Course objective	This course would enable the understanding of the following: 1. Enzyme inhibition and coenzymes 2. Metabolic pathways involved in Glycolysis, TCA, oxidative phosphorylation, and electron transport chain 3. Metabolism of proteins and amino acids 4. Chemistry and metabolism of cholesterol	

	5. Drug metabolism and introductory nutritional biochemistry	
Learning Outcomes	By the end of the course, student will be able to explain the following using relevant pathways: 1. Enzyme inhibition and coenzymes 2. Metabolic pathways involved in Glycolysis, TCA, oxidative phosphorylation, and electron transport chain 3. Metabolism of proteins and amino acids 4. Chemistry and metabolism of cholesterol 5. Drug metabolism and introductory nutritional biochemistry	
Teaching and Learning	The class will meet for two hours each week. Class time will be used for a combination of lectures and Tutorial sessions	
Detailed Course Content	Intracellular localization of enzymes. Properties of enzymes. Enzyme kinetic and inhibition; co-enzymes and cofactors. Glycolysis, Tricarboxylic acid cycle, Oxidative Phosphorylation and Hexose monophosphate shunt. Membranes and transport. Glycogen synthesis and breakdown. Oxidative deamination, transamination, and urea cycle. Degradation of amino acid. Synthesis of fatty acids, oxidation of fatty acids. DNA replication and transcription: protein biosynthesis and regulation. Cholesterol: chemistry, synthesis, and breakdown. Biochemical basis of hormone action. Drug metabolism. Mineral metabolism and role of calcium in bone formation. Introduction to Nutritional Biochemistry.	
Course content sequencing		
Weeks	**Detailed Course Outline**	**Allocated Time**
Week 1-2	Intracellular localization of enzymes Properties of enzymes Enzymes kinetic and inhibition	4 hours
Week 3-4	Coenzymes and Cofactors Glycolysis, Tricarboxylic acid cycle Oxidative phosphorylation and Hexose monophosphate shunt	4 hours

Week 5-7	Membranes and Transport Glycogen synthesis and breakdown Oxidative deamination, transamination and urea cycle Degradation of amino acid, Synthesis of fatty acids, oxidation of fatty acids	6 hours
Week 8-9	DNA replication and transcription; protein biosynthesis and regulation Cholesterol: chemistry, synthesis and breakdown	4 hours
Week 10	Biochemical basis of hormone action Drug metabolism. Mineral metabolism and role of calcium in bone formation. Introduction to Nutritional Biochemistry	2 hours
After Week 12	Examinations	

Recommended Reading Material

1. David, L., Nelson, D.L., Cox, M.M., Stiedemann, L., McGlynn Jr, M.E. and Fay, M.R., 2000. Lehninger principles of biochemistry.
2. Lieberman, M. and Marks, A.D., 2009. *Marks' basic medical biochemistry: a clinical approach*. Lippincott Williams & Wilkins.
3. Rodwell, V.W., 2015. *Harper's illustrated biochemistry*. McGraw-Hill Education.
4. Vasudevan, D.M., Sreekumari, S. and Vaidyanathan, K., 2019. *Textbook of biochemistry for medical students*. Jaypee brothers Medical publishers.
5. Chatterjea, M.N. and Shinde, R., 2011. *Textbook of medical biochemistry*. Wife Goes On.

Course Code: BCM 218

Course Title: Enzymes and Intermediary metabolism

Preamble: Biochemistry is the study of biological and structural functions of biomolecules and their metabolism.

A. Specific Course Objectives/Learning Outcomes

This course would enable the understanding of the following

1. Enzyme inhibition and coenzymes

2. Metabolic pathways involved in Glycolysis, TCA, oxidative phosphorylation, and electron transport chain
3. Metabolism of proteins and amino acids
4. Chemistry and metabolism of cholesterol
5. Drug metabolism and introductory nutritional biochemistry

Learning Activities/Course Delivery Methods
Lectures: Detailed content of course are taught in class

Course Content: Intracellular localization of enzymes. Properties of enzymes. Enzyme kinetic and inhibition; co-enzymes and cofactors. Glycolysis, Tricarboxylic acid cycle, Oxidative Phosphorylation and Hexose monophosphate shunt. Membranes and transport. Glycogen synthesis and breakdown. Oxidative deamination, transamination, and urea cycle. Degradation of amino acid. Synthesis of fatty acids, oxidation of fatty acids. DNA replication and transcription: protein biosynthesis and regulation. Cholesterol: chemistry, synthesis, and breakdown. Biochemical basis of hormone action. Drug metabolism. Mineral metabolism and role of calcium in bone formation. Introduction to Nutritional Biochemistry.