

Module code	SB-4341		
Module Title	Advanced Biochemistry		
Degree/Diploma	Bachelor of Science (Biology)		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	8 hours/week
		Contact hours	2 hours/week lectures 4 hours/week practicals
Prerequisite	SB-2210 Cells, Biomolecules and Microbiology		
Anti-requisite	None		
Aims			
To provide students with details of the metabolism of major classes of biomolecules which will encourage an appreciation of the diversity and interconnection of metabolic pathways and their applications.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	40%	<ul style="list-style-type: none"> - Explain the biosynthesis and catabolism of various metabolites in cells - Describe carbohydrate metabolism, particularly, gluconeogenesis and the pentose phosphate pathway - Describe lipid and nucleotide metabolism as well as biosynthesis and catabolism of amino acids 	
Middle order :	40%	<ul style="list-style-type: none"> - Discuss metabolic interrelationships in cells and tissues under various conditions - Dissect biosynthetic and catabolic pathways of diverse metabolites and their products in cells - Conduct laboratory practicals, collect data, interpret and discuss results 	
Higher order:	20%	<ul style="list-style-type: none"> - Work effectively in groups during laboratory practicals and independently in reporting experimental results 	
Module Contents			
<ul style="list-style-type: none"> - Carbohydrate metabolism - Gluconeogenesis and the pentose phosphate pathway - The role of enzymes and hormones in the control of metabolisms - Metabolic roles and importance in energy supply and provision of precursors - Lipid metabolism - Function, transport and storage of lipids and other esters - Biosynthesis, degradation and desaturation - Acetyl-CoA carboxylase and fatty acid synthesis - Purine and pyrimidine nucleotide metabolism - Nitrogen acquisition and amino acid metabolism - Biosynthesis and catabolism of amino acids and the regulation of pathways - Metabolic interrelationships 			
Assessment	Formative assessment	Weekly discussion of selected topics will be used to test students' understanding	
	Summative assessment	Examination: 60% Coursework: 40% <ul style="list-style-type: none"> - 2 written assignments (30%) - 2 class tests (10%) 	