

ZNUT C2101: Nutritional Biochemistry

Module Title	:		Nutritional Biochemistry		
Language of Instruction:		n:	English		
Credits:		10			
NFQ Level:		6			
Module Deli	vered In		2 programme(s)		
Teaching & Strategies:	Learning		This module will be taught in three theory classes of one h practical class per week. Classes may take the form of for teaching techniques will be used as appropriate, including Students will be encouraged to learn by active engageme presented at theory classes will be reinforced, discussed a	mal lectures or tutorial-type sessions. A range of worksheets, PowerPoint and other presentations. nt in group work and class discussions. Material	
Module Aim	:		The aim of this module is to give the student a sound know of nutrients and to develop basic biochemical practical and Safety.		
Learning Ou	tcomes				
On successfu	ıl completio	n of th	is module the learner should be able to:		
LO1	Describe t	he cla	ssification, structure and functions of major biochemical mo	lecules	
LO2	Outline the	e cont	rol of metabolism and the central metabolic pathways		
LO3	Carry out	basic	aboratory techniques with due regard to safety		
LO4	Prepare scientific laboratory reports				
Pre-requisite learning					
Module Recommendations This is prior learning (or a practical skill) that is recommended before enrolment in this module.					
4504		5	SCIE H1111	Chemistry	
<i>Incompatible Modules</i> These are modules which have learning outcomes that are too similar to the learning outcomes of this module.					
No incompatible modules listed					
Co-requisite	Modules				
No Co-requis	ite modules	s listed	I		
Requiremen This is prior l		a prac	tical skill) that is mandatory before enrolment in this module	e is allowed.	
No requireme	ents listed				



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Module Content & Assessment

Indicative Content

Basic Biochemical Systems

The cell system, the biomembrane, the functions of water

Amino Acids and Proteins

Structure of amino acids, essential and nonessential amino acids. Polymerisation and protein structure. The functions of proteins

Enzymology The definition and mode of action of enzymes. The factors influencing enzyme activity

Carbohydrates

Classification, structure and functions of glucose, starch, glycogen and cellulose. Non-starch polysaccharides

Lipids

The structure and functions of simple, complex and derived lipids. Essential fatty acids. The digestion and transport of lipids

Vitamins

The biochemical functions of fat-soluble and water-soluble vitamins

Minerals

Macrominerals and trace minerals, biochemical role of minerals

Metabolism and Bioenergetics

Introduction to metabolism and the control of metabolism. Metabolic pathways; Glycolysis, the citric acid cycle, the electron transfer chain, β -oxidation. The generation of ATP. Ketosis. Amino acid catabolism. Gluconeogenesis

Practical

Classes will cover Health & Safety regulations and requirements, relevant calculations and scientific reporting. Students will develop skills in the use of biochemical equipment such as pipettes, pH meters and UV spectrophotometers as well as basic laboratory techniques such as biochemical analysis, chromatography and the study of enzyme activity

Assessment Breakdown	%
Continuous Assessment	10.00%
Practical	40.00%
End of Module Formal Examination	50.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	One short continuous assessment, in class	1,2	10.00	n/a

No Project

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical Laboratory Book	3,4	40.00	Every Week

End of Module Formal Exa	amination			
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	Two hour written final examination.	1,2	50.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment



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Module Workload

Workload: Full Time					
Workload Type	Frequency	Average Weekly Learner Workload			
Lecture	12 Weeks per Stage	3.00			
Laboratory	12 Weeks per Stage	2.00			
Estimated Learner Hours	15 Weeks per Stage	12.67			
	Total Hours	250.00			

Module Delivered In			
Programme Code	Programme	Semester	Delivery
CW_SASPS_B	Bachelor of Science (Honours) in Sport and Exercise Science	3	Mandatory
CW SASAC B	Bachelor of Science (Honours) in Strength and Conditioning	3	Mandatory