

Module Title:	Nutritional Biochemistry	
Language of Instruction:	English	
Credits:	10	
NFQ Level:	6	
Module Delivered In	2 programme(s)	
Teaching & Learning Strategies:	This module will be taught in three theory classes of one hour duration and the equivalent of a two hour practical class per week. Classes may take the form of formal lectures or tutorial-type sessions. A range of teaching techniques will be used as appropriate, including worksheets, PowerPoint and other presentations. Students will be encouraged to learn by active engagement in group work and class discussions. Material presented at theory classes will be reinforced, discussed and developed during practical classes.	
Module Aim:	The aim of this module is to give the student a sound knowledge of the structure, functions and metabolism of nutrients and to develop basic biochemical practical and reporting skills, with due regard to Health and Safety.	
Learning Outcomes		
On successful completion of this module the learner should be able to:		
LO1	Describe the classification, structure and functions of major biochemical molecules	
LO2	Outline the control of metabolism and the central metabolic pathways	
LO3	Carry out basic laboratory 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	SCIE H1111	Chemistry
Incompatible Modules		
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-requisite modules listed		
Requirements		
This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.		
No requirements listed		

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%

Special Regulation

Students must achieve a minimum grade (35%) in both practical/CA and final examination

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 Examination

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

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
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