ZCHE C2101: Biochemistry Biomolecules

Module Title:	Biochemistry Biomolecules
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	4 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. Factual 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 basic biochemical molecules their structures and functions, and to develop basic laboratory technical 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	Carry out basic biochemical techniques with due regard to safety in the laboratory

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		

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Module Content & Assessment

Indicative Content
Basic concepts The cell system and biomembranes. The properties and role of water
Amino Acids and Proteins Classification and structure of amino acids. Polymerisation. Classification, structure and functions of proteins.
Carbohydrates Classification, structure and functions of glucose, starch, glycogen and cellulose. Non-starch polysaccharides and glycoconjugates.
Lipids and the lipid bilayer The structure and functions of simple, complex and derived lipids. The digestion and transport of lipids
Transport and ion gradients Passive, facilitated and active transport. The sodium-potassium pump. Ion gradients
Vitamins Fat-soluble and water –soluble vitamins; functions, deficiency states and toxicity.
Minerals Macrominerals and trace minerals, biochemical role of minerals.
Practical Health &Safety regulations and requirements. Practical classes will develop reporting and numerical skills as well as skills in the use of biochemical equipment and techniques including the following or similar; the preparation of solutions, dilutions and standard graphs; the use of pipettes, UV spectrophotometers and other laboratory equipment; biochemical analysis; chromatographic separation

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	A number of short assessments	1	10.00	n/a

No Project

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Practical Laboratory Book	2	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	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	2.00
Laboratory	12 Weeks per Stage	2.00
Estimated Learner Hours	15 Weeks per Stage	5.13
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_SABTP_B	Bachelor of Science (Honours) in Biosciences with Biopharmaceuticals	3	Mandatory
CW_SABRE_B	Bachelor of Science (Honours) in Brewing and Distilling	3	Mandatory
CW_SABFQ_D	Bachelor of Science in Biosciences	3	Mandatory
CW_SASCI_C	Higher Certificate in Science in Applied Biology or Applied Chemistry	3	Group Elective 1