

Module Details	
Module Title	Introductory Biochemistry
Module Code	BIS4007-B
Academic Year	2022/3
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 4

Contact Hours	
Type	Hours
Lectures	25
Laboratories	5
Practical Classes or Workshops	3
Directed Study	162
Online Lecture (Synchronous)	4
Online Seminar (Synchronous)	2

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims
<p>To provide an introduction to the major classes of biomolecules involved in storing or deriving energy and to consider the processes of metabolism. To promote an understanding of how these molecules function in an integrated manner in the living body and to learn some of the fundamental biochemical principles of reaction kinetics, equilibrium and imaging techniques. To learn how biochemistry is applied in the modern world - from clinic to research.</p>

Outline Syllabus

Introduction, aims and relevance; Block 1: Molecules of Life: Covalent, and non-covalent bonding in biomolecules, Oxidation and Reduction, Buffers, basic structure and function of nucleotides and nucleic acids; carbohydrates, fatty acids and amino acids, Enzyme structure, factors affecting catalysis, enzyme kinetics, co-factors, inhibition and regulation Block 2: Energy generation and metabolism: , Energy generation via TCA cycle and Electron transport chain, Glycogen metabolism Block 3: Studying biomolecules: protein folding and disease, Amino acid metabolism, Urea cycle and diseases of protein metabolism, Lipid metabolism and diseases of lipid metabolism, basic principles of imaging techniques used in biochemistry.

Learning Outcomes

Outcome Number	Description
01	Describe the structure, function and metabolism of molecules of biological importance (HCPC standard 13), including carbohydrates, lipids, nucleotides, proteins and enzymes.
02	Explain the relationship between the basic biological molecules in health and disease. Explain the basis of common biochemistry techniques and how they are applied in healthcare and research.
03	Select and interpret biochemical investigations using simple enzyme kinetic data and design experiments, report, interpret and present data using scientific convention, including application of SI units and other units used in biomedical practice (HCPC standards 3, 14 and 15).
04	Work in accordance with laboratory health and safety protocols (HCPC standards 3, 15).
05	Employ skills in data handling.
06	Employ effective time management and be able to work in partnership with others (HCPC standards 1 and 9).

Learning, Teaching and Assessment Strategy

Information outlining the subject knowledge and understanding is delivered via lectures and workshops. Formative MCQ tests and quizzes on the lecture material will be made available via the virtual learning environment (VLE) to support knowledge, understanding and autonomous learning. The practical classes will provide experience with basic biochemical techniques and insights into metabolic processes. Your ability to interpret data will be demonstrated by a formative coursework assessment on the first practical class, then a summative assessment based on the second practical class and/or data interpretation workshop. The laboratory sessions will involve you working individually (due to social distancing requirements) but this data will be collated for data analysis in accordance with your assigned groups, interpreting data, planning of experimental work and working to deadlines. During directed study hours, students are expected to undertake reading to consolidate and expand on the content of formal taught sessions; research and prepare for assessments and revise material from formal taught sessions. Private study will be facilitated and supported via the use of the VLE which will provide coursework advice and feedback, and revision support.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Examination - Closed Book	On campus MCQ assessment (1.5 Hrs)	60%
Summative	Online MCQ Examination	One online assessment MCQ based on laboratory class (1Hr)	40%

Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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