

Introductory Biochemistry

Module Code:	BIS4007-B
Academic Year:	2018-19
Credit Rating:	20
School:	School of Chemistry and Biosciences
Subject Area:	Biomedical Science
FHEQ Level:	FHEQ Level 4

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	25
Tutorials	4
Laboratory	8
Directed Study	163

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

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.

Outline Syllabus

Introduction, aims and relevance; Block 1: Molecules of Life: Covalent, and non-covalent bonding in biomolecules, basic structure and function of nucleotides and nucleic acids; carbohydrates, fatty acids and amino acids, Buffers and equilibria; Block 2: Energy generation and metabolism: Enzyme structure, factors affecting catalysis, enzyme kinetics, co-factors, inhibition and regulation, Energy generation via TCA cycle and Electron transport chain, Glycogen metabolism, Amino acid metabolism and Urea cycle, Lipid metabolism. Block 3: Studying biomolecules: biochemistry applied in the modern world from clinic to research, basic principles of imaging techniques used in biochemistry, introduction into biochemistry in disease.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Describe the structure, function and metabolism of molecules of biological importance (HCPC standard 13), including carbohydrates, lipids, nucleotides, proteins and enzymes.
- 2 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.
- 3 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).
- 4 Work in accordance with laboratory health and safety protocols (HCPC standards 3, 15).
- 5 Employ skills in data handling.
- 6 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 working as a team, 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.

Reassessment of failed elements will be as per the initial method of assessment. Where

reassessment of the laboratory practical element is required, students will be given a data set or an opportunity to complete the laboratory practical on an alternative occasion, whichever is more appropriate.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Examination - MCQ	MCQ and extended MCQ examination (LO1-3)	1.5 hours	60%	Yes
Summative	Classroom test	One in-course assessment MCQ based on laboratory class (LO3-6)	1 hour	40%	No

Legacy Code (if applicable)

BM-1119D

Reading List

To view Reading List, please go to [rebus:list](#).