

Liverpool John Moores University

Title: BIOMOLECULAR STRUCTURE AND ANALYSIS
Status: Definitive
Code: **4502ICBTBE** (127038)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: ICBT, Colombo

Team	Leader
Alison Cotgrave	Y

Academic Level: FHEQ4
Credit Value: 15
Total Delivered Hours: 62
Total Learning Hours: 150
Private Study: 88

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	45
Practical	9
Tutorial	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Formal written exam	70	2
Report	Report	Practical portfolio (1500 words)	30	

Aims

To enable learners to apply chemical principles to develop knowledge and understanding of the structure and classification of amino acids, monosaccharides, mononucleotides and fatty acids; optical isomerism in amino acids and monosaccharides and its significance; α and β anomeric forms of monosaccharides. Also to apply knowledge of building block molecules to derive the detailed structures of proteins, polysaccharides, nucleic acids and lipids and relate the structures to

biological function – globular and fibrous proteins, enzymes and active sites, storage and structural polysaccharides, RNA/DNA and role in protein biosynthesis, storage and membrane lipids.

Learning Outcomes

After completing the module the student should be able to:

- 1 Apply chemical principles to the structure of biological building block molecules and their properties.
- 2 Use building block molecules to derive the structure of biological macromolecules and relate macromolecular structure to biological function.
- 3 Describe the properties, relationship between structure and function of enzymes, active sites, and enzyme inhibitions.
- 4 Acquire a range of biochemical practical skills and cognate techniques.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Formal written exam	1	2	3
Practical report	4		

Outline Syllabus

Biological building block molecules: Monosaccharides, aldoses and ketoses, amino acids, nucleosides and nucleotides, fatty acids.

Structure of biological macromolecules: Polysaccharides, protein structure, enzymes, nucleic acids, phospholipids.

Biochemical practical skills and cognate techniques: Protein separation and determination of unknown concentrations of biological molecules.

Learning Activities

Students will be supported in their learning, to achieve the above learning outcomes, in the following ways:

- Theoretical basis in Biochemistry and Enzymology are delivered through lectures, tutorials and group work.
- Analytical aspects of bio molecules are introduced by tutor-led practical sessions.
- Multimedia presentations are to be discussed to get familiarized with higher level biochemical applications in the field of medicine.

Notes

Learners will need access to appropriate laboratory, library and IT facilities and

tutorials.