

Liverpool John Moores University

Title: BIOLOGICALLY ACTIVE MOLECULES
Status: Definitive
Code: **4006PHASCI** (122592)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ4 **Credit Value:** 20 **Total Delivered Hours:** 68
Total Learning Hours: 200 **Private Study:** 132

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	34
Practical	16
Workshop	16

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	CW	Portfolio of Practical Reports	40	
Exam	Exam	Written Examination	60	2

Aims

To emphasise those chemical properties which are significant with respect to the involvement of drugs in biochemical transformations. To develop an ability to gather, evaluate and communicate scientific information. To facilitate the application of information presented in this module to the solution of problems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify the essential similarities between chemical and biochemical transformations and demonstrate a basic knowledge of the properties of biologically significant molecules
- 2 Demonstrate knowledge of functional groups as applied to biochemical molecules
- 3 Describe the structure and function of proteins including the kinetics of enzyme action and types of enzyme inhibition
- 4 Demonstrate a knowledge of the genetic basis of disease and the potential for gene therapy, including the processes involved in DNA replication and transcription
- 5 Demonstrate an ability to gather, evaluate and communicate information relevant to the module and apply that information to the solution of problems

Learning Outcomes of Assessments

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

Practical Reports	1	3	5	
Exam	2	1	3	4

Outline Syllabus

Biomolecules: review of functional groups with particular reference to biologically significant molecules; natural products; structure, synthesis and function of proteins and enzymes; nucleic acids; genes; antibodies; DNA; mRNA translation; micronutrients; vitamins

Biochemistry: the kinetics of enzyme action and types of enzyme inhibition; normal and abnormal metabolism with an overview of metabolic pathways and physiological use of energy sources; DNA replication and transcription.

Genetics: introduction; molecular genetics; genetic basis of disease and an introduction to the concept of gene therapy

Bioassays: protein concentration; enzyme activity

Practical: enzyme kinetics of PNP, presence/absence of inhibitor

Practical: protein bioassay, scenario-based

Learning Activities

Lectures covering each topic within the module

Directed reading associated with each module topic

Practical sessions giving students first-hand experience of relevant enzyme and protein bioassays; practical briefing lecture
Problem solving workshops to support literature review, experimental design and analysis of data generated during practical sessions
Formative online MCQ test

Notes

Formative assessment in the form of an online quiz covering exam style MCQ questions
Practical sessions will involve students gaining experience of basic enzyme and protein bioassays; developing data analysis and reporting skills.
Exam will assess students understanding of biologically active molecules