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Title: PRINCIPLES OF BIOCHEMISTRY
Status: Definitive
Code: **4103BMBMOL** (122374)
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:** 61
Total Learning Hours: 200 **Private Study:** 139

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	44
Practical	15

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam - A combination of MCQ and short answer questions	50	2
Report	Rpt	Practical report - Analysis of results generated in a laboratory class	50	

Aims

The aim of this course is to provide an education in the fundamental biochemical processes which occur in the cell. This will be underpinned by a thorough introduction into the relevant molecular biology of DNA, proteins and lipids.

Learning Outcomes

After completing the module the student should be able to:

- 1 Explain the structure and function of basic biological molecules such as proteins, carbohydrates, lipids and DNA.
- 2 Explain the major metabolic pathways of cellular metabolism.
- 3 Analyse and present basic biochemical data in the form of a practical report

Learning Outcomes of Assessments

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

Examination	1	2
Practical report	3	

Outline Syllabus

This course will present the fundamental underlying principles of biochemistry from first principles, and as such will focus on the relevant molecular groups, structures and chemical reactions for each distinct branch of biochemistry. The structure and function of DNA will also be considered and a brief overview of transcription and translation also given. Building upon this knowledge of fundamental groups and chemical reactions, students will then be introduced to cellular energy metabolism: Glycolysis and gluconeogenesis, glycogen metabolism, the citric acid cycle, oxidative phosphorylation, the Calvin cycle, fatty acid metabolism, amino acid catabolism, TCA cycle, respiration and the clinical and commercial implications of these pathways.

Learning Activities

This course will consist of lectures and practicals. The practicals will develop laboratory skills and re-inforce taught material.

Notes

The aim of this course is to provide an education in the metabolic chemical processes which occur in the cell. This will be underpinned by a thorough introduction into relevant biological and chemical structures at the molecular level. Each student will also do a range of practicals which will investigate the characteristics of biological molecules. Knowledge and comprehension questions will accompany a

through write-up of the practical.

The exam will consist of both multiple choice questions and short answer questions which will cover both the practical and lecture content of the course.

No specific benchmarks are available for this module, but the learning outcomes at least meet, if not exceed, those stipulated in the relevant qualification descriptors for a higher education qualification at level 4 as defined by QAA, Sept 2015. The module has also been informed by the benchmark statement for Biomedical Science June 2015.

Intake is every September.

The criteria for admission to the module require that candidates meet the criteria for admission to the BSc Biomedical Science programme (32805).

The final award is Certificate of Professional Development in Principles of Biochemistry, 20 credits at Level 4.

The students have access to a module Blackboard site and the University's other range of electronic support such as access to the electronic library facilities. The module content is regularly updated on the Blackboard site including contemporary reading lists and links to journal articles. Students have access to the community site for Biomedical Science. All students have access to the module leader through phone contact and email. Module and CPD guides are also provided, which provide a range of information.

The programme is assessed and run in line with the Academic Framework

<http://www.ljmu.ac.uk/eaqs/121984.htm>

The module is accredited by The Institute for Biomedical Science (Sept 2016- Aug 2021). The module forms part of the BSc Biomedical Science programme (32805) which was reviewed in April 2016.

The methods for improving the quality and standards of learning are as follows:

- Annual monitoring Review;
- Liaison and feedback from the students;
- Reports from External Examiner;
- Programme team ensuring the module reflects the values of the current teaching and learning strategy;
- Module leader updating knowledge and skills to ensure these remain current and relevant.

The module is included in the programme specification for the BSc Biomedical Science programme (32805). The module is aligned with the same BSc Biomedical Science module for annual monitoring and external examining purposes.