

## Liverpool John Moores University

Title: INTRODUCTION TO CELL AND MOLECULAR BIOLOGY  
Status: Definitive  
Code: **4103BCBMOL** (122483)  
Version Start Date: 01-08-2021

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

| Team          | Leader |
|---------------|--------|
| Helen Burrell | Y      |
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| Kehinde Ross  |        |
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| Khalid Rahman |        |

**Academic Level:** FHEQ4      **Credit Value:** 20      **Total Delivered Hours:** 60  
**Total Learning Hours:** 200      **Private Study:** 140

### Delivery Options

Course typically offered: Semester 1

| Component | Contact Hours |
|-----------|---------------|
| Lecture   | 49            |
| Practical | 6             |
| Workshop  | 3             |

**Grading Basis:** 40 %

### Assessment Details

| Category | Short Description | Description        | Weighting (%) | Exam Duration |
|----------|-------------------|--------------------|---------------|---------------|
| Exam     | ASS2              | exam               | 60            | 2             |
| Report   | ASS1              | practical write up | 40            |               |

### Aims

*To provide an introduction to the fields of cell biology (the study of the structure and*

*function of cells) and molecular biology (the study of the relationships between DNA, RNA and proteins).*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Describe the relationships between structure, function and communication in cells and tissues.
- 2 Summarise the cellular processes required for DNA, RNA and protein biosynthesis.
- 3 Describe the basis of genetics.
- 4 Use experimental methods to explain key molecules and cellular processes

## **Learning Outcomes of Assessments**

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

|                    |   |   |   |
|--------------------|---|---|---|
| exam               | 1 | 2 | 3 |
| practical write up | 4 |   |   |

## **Outline Syllabus**

*1) Cell structure/function: general differences between prokaryotes and eukaryotes (including animal and plant cells), cytoskeleton, lysosomes/peroxisomes/vacuoles, endoplasmic reticulum/Golgi apparatus, mitochondria, cell adhesions/extracellular matrix*

*2) Cell cycle*

*3) Membrane structure/function*

*4) Basic tissues/histology*

*5) Basic cell signalling and receptors including receptor tyrosine kinase and MAP kinase, JAK/STAT pathways*

*6) Basic molecular biology: DNA structure/function, histones, prokaryotic and eukaryotic DNA replication, prokaryotic and eukaryotic transcription, translation, operons, post translational modification, DNA repair*

*7) Basic genetics*

## **Learning Activities**

Lectures

Practicals

Workshops

## **Notes**

This module will enable students to demonstrate basic understanding of cell

structure/function and how cells give rise to functions within tissues. Molecular biology and the relationship of DNA, RNA and proteins will be explained and linked to basic genetics. Students will encounter experimental methods to investigate the relevant areas of cell biology and molecular biology.