

## Liverpool John Moores University

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Title: Advanced Molecular Biosciences  
Status: Definitive  
Code: **6012BCBMOL** (116987)  
Version Start Date: 01-08-2018

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

Team	Leader
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**Academic Level:** FHEQ6      **Credit Value:** 36      **Total Delivered Hours:** 69  
**Total Learning Hours:** 360      **Private Study:** 291

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	37
Seminar	25
Tutorial	4

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	ASS2	graduate skill tested A4 (relates and compares info from sources, reviewing evidence before coming to conclusion) and H2 (locates and accesses information with an understanding of provenance	30	

Category	Short Description	Description	Weighting (%)	Exam Duration
		and relevance)		
Test	ASS1	Scatchard Assessment	20	2
Exam	Exam	Final Exam	50	3

## Aims

*To provide students with a state of the art knowledge of central aspects of cell biology, molecular biology, and biochemistry and to encourage the development of analytical skills.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss important topics in cell biology, molecular biology, structural biochemistry, and proteins at an advanced level
- 2 Analyse experimental data
- 3 Read, interpret and critique scientific literature

## Learning Outcomes of Assessments

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

Experimental Design Assessment	3
Scatchard Assessment	2
Final Exam	1

## Outline Syllabus

- 1) *Cell signalling - general features of receptors, mode of action of signalling molecules with intracellular receptors, signal transduction pathways.*
- 2) *The molecular control of cell division and cell death, interaction of these in normal and tumour cells.*
- 3) *Growth factors and mitogens: general features, mechanisms of action and role in cell proliferation, differentiation and cell death. Methods used to study changes due to growth factors/mitogens.*
- 3) *Role of cytoskeleton in maintaining structure and mechanical properties of cells. Influence of extracellular matrix on the morphology and biochemistry of cells. Response of cells to wound healing. Methods used to study the cytoskeleton.*
- 4) *Molecular biology - properties of nucleic acids, genome organisation, gene families, eukaryotic gene expression and its control, bioinformatic methods for analysis.*
- 5) *Glycoproteins: Structural diversity and biosynthesis, analysis of glycans, carbohydrate function and binding.*

6) *Proteins: Principles of investigation, investigating/exploiting protein interactions, omics.*

### **Learning Activities**

Lectures, workshops, tutorials,

### **Notes**

Several textbooks have been recommended. Papers will be added to Blackboard as and when needed for each lecture block.