

## Liverpool John Moores University

Title: RECOMBINANT DNA AND GENOMICS  
Status: Definitive  
Code: **7102BTBMOL** (124247)  
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:** FHEQ7      **Credit Value:** 30      **Total Delivered Hours:** 60

**Total Learning Hours:** 300      **Private Study:** 240

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	22
Practical	30
Tutorial	2
Workshop	3

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam essay-type/interpretive questions	50	3
Essay	Essay	Assignment	20	
Report	Report	Mini-project	30	

### Aims

*To provide in-depth knowledge of current concepts and techniques in gene*

*manipulation, emphasizing the developments and applications of genomics.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Critically discuss the underlying principles of recombinant DNA technology and be aware of emerging techniques and applications.
- 2 Critically assess molecular methodologies as applied to specific problems in gene technology.
- 3 Critically evaluate the development of transgenic plants/animals using molecular techniques, and assess the future impact of such research.
- 4 Evaluate critically and use different methods for communicating scientific information; manipulate, interpret and analyse data critically.

## **Learning Outcomes of Assessments**

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

Examination	1	4
Essay	1	3
Mini-project	2	4

## **Outline Syllabus**

*Review of the development of gene technology including vector design, transformation/transfection methods*

*Gene expression: e.g. RNA interference, qPCR, Expression microarrays*

*Genomics: e.g. gene cloning; genome sequencing; Polymerase Chain Reaction and related techniques; site-directed mutagenesis; nucleic acid hybridisation; DNA array technology; DNA profiling; applications of genomics to medicine. Bioinformatics;. GWAS; Epigenetics*

*Transgenics: e.g. development of genetically-modified plants. animals, detection of GMO*

## **Learning Activities**

Lectures, practicals, workshops, tutorials, student-centred activities.

## **Notes**

This module provides in-depth coverage of developments in recombinant DNA technology and genomics, using examples from both prokaryotic and eukaryotic systems. Principles, techniques and applications of gene technology are critically reviewed, with emphasis on the implications of genomics for molecular biological

research.

The module provides the opportunity to develop core skills such as: analysing and solving problems, written and oral communication, initiative, creativity, numeracy, personal planning and organisation, time management, flexible thinking and IT, as well as subject-specific and technical skills.