

Liverpool John Moores University

Title: RECOMBINANT DNA AND GENOMICS
Status: Definitive
Code: **7027BTBMOL** (120855)
Version Start Date: 01-08-2015

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

Team	Leader
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Academic Level: FHEQ7 **Credit Value:** 30.00 **Total Delivered Hours:** 60.00
Total Learning Hours: 300 **Private Study:** 240

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	22.000
Practical	30.000
Tutorial	2.000
Workshop	3.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam essay-type/interpretive questions	60.0	3.00
Essay	Essay	Assignment	15.0	
Report	Report	Mini-project	25.0	

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 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 Discuss 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.