

## Liverpool John Moores University

Title: CELL TECHNOLOGY (V.2)  
Status: Definitive  
Code: **7006BTBMOL** (101532)  
Version Start Date: 01-08-2011

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

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**Academic Level:** FHEQ7      **Credit Value:** 15.00      **Total Delivered Hours:** 30.00  
**Total Learning Hours:** 150      **Private Study:** 120

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	22.000
Practical	6.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	2 essays out of a choice of 5.	60.0	2.00
Report	AS2	Practical report	20.0	
Presentation	AS3	Review paper/oral presentation	20.0	

### Aims

*To provide an understanding of cell culture as a technological component of aspects of biological research and commercial exploitation.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 demonstrate an understanding of the applications of cell technology to the field of biotechnology.
- 2 discuss the techniques used in culturing animal cells and to appreciate the range of uses of these cells.
- 3 be aware of the relationship between animal, insect and plant cell culture techniques.
- 4 discuss the methods used and reasons for the genetic manipulation of cells.
- 5 discuss the principles involved in the commercial production of therapeutic agents from cells.
- 6 analyse, interpret and critically discuss data.
- 7 interpret, analyse critically and present material relating to current topics in biotechnology.
- 8 demonstrate ability to work in teams.

## Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5	7
RPT	1	2	6	7	8	
presentation	1	3	4	7		

## Outline Syllabus

*Animal cell culture methods and factors necessary for the maintenance and growth of cells in culture. Design of culture facilities. Safety issues.*

*Baculovirus vectors and insect cell culture.*

*Genetic engineering of animal cells: infection, expression vectors, immortalised cell lines, transgenic animals.*

*Animal products and commercialisation.*

*Plant cell culture and commercial products derived from plant cells.*

*Protein expression and processing. Scale-up, bioreactors, process control and downstream processing.*

## Learning Activities

Lectures, practical.

## References

<b>Course Material</b>	Book
<b>Author</b>	Barker, K
<b>Publishing Year</b>	2005
<b>Title</b>	At the bench: a laboratory navigator.
<b>Subtitle</b>	
<b>Edition</b>	Updated edition
<b>Publisher</b>	Cold Spring Harbour Laboratory Press
<b>ISBN</b>	0879697083

<b>Course Material</b>	Book
<b>Author</b>	Bishop, J
<b>Publishing Year</b>	1999
<b>Title</b>	Transgenic mammals.
<b>Subtitle</b>	
<b>Edition</b>	2nd Ed.
<b>Publisher</b>	Longman
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Butler, M
<b>Publishing Year</b>	2004
<b>Title</b>	Animal Cell Culture and Technology.
<b>Subtitle</b>	
<b>Edition</b>	2nd ed.
<b>Publisher</b>	BIOS Scientific Publishers
<b>ISBN</b>	ISBN 1859960499

<b>Course Material</b>	Book
<b>Author</b>	Colin, H.A. Edwards, S
<b>Publishing Year</b>	1993
<b>Title</b>	Plant cell culture
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	BIOS SCientific publishers
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Drlika, K
<b>Publishing Year</b>	2003
<b>Title</b>	Understanding DNA and gene cloning.
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Wiley
<b>ISBN</b>	

<b>Course Material</b>	Book
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<b>Author</b>	Lim, H.A
<b>Publishing Year</b>	2002
<b>Title</b>	Genetically yours: bioinfarming, biophaming, biofarming
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	World Scientific
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Moses, V. Cape, R.E. Springham, D.G.
<b>Publishing Year</b>	1999
<b>Title</b>	Biotechnology: the science and the business
<b>Subtitle</b>	
<b>Edition</b>	2nd ed
<b>Publisher</b>	Harwood
<b>ISBN</b>	

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### Notes

This module provides an insight into the principles and practical techniques involved in the commercial exploitation of animal cell processes.