Liverpool John Moores University

Title:	CURRENT TOPICS IN BIOTECHNOLOGY
Status:	Definitive
Code:	**6105BCBMOL** (126540)
Version Start Date:	01-08-2021
Owning School/Faculty:	Pharmacy & Biomolecular Sciences
Teaching School/Faculty:	Pharmacy & Biomolecular Sciences

Team	Leader
Mayri Alejandra Diaz	Y
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Academic Level:	FHEQ6	**Credit Value:**	20	**Total Delivered Hours:**	55
Total Learning Hours:	200	**Private Study:**	145		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	30
Practical	15
Workshop	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Report	Case study	50	
Exam	Exam	Exam	50	2

Aims

This module will enable students to develop an in depth understanding of the principles and applications of the white, red and blue biotechnology and their impact in our society through an integrated knowledge of concepts.

Learning Outcomes

After completing the module the student should be able to:

1 Critically discuss the use of biocatalysts in the different fields of biotechnology.
2 Critically discuss industrial practice in the synthesis of products across different fields of biotechnology.
3 Critically discuss the design and operation of bioreactors.
4 Demonstrate knowledge and understanding of a biotechnological application by completion of a case study.

Learning Outcomes of Assessments

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

Report	4		
Examination	1	2	3

Outline Syllabus

Physical processes, reactions, introduction to material and energy balances, reactor engineering.
Applications of biocatalysts in White biotechnology (use of industrial enzymes in food, beverage, detergent, textile industries).
Biocatalysis in production of pharmaceuticals (antibiotics, natural products, synthetic compounds).
Recent developments in industrial biocatalysis (biofuels and bioenergy, microbial fuel cells).
Principles of Red biotechnology, gene therapy, genome editing, recombinant therapeutic protein, immunotherapy, regenerative medicine, analysis of microbiome.
Use of plant biotechnology for the improvement of crops in terms of quality and yields.
Principles of Green Chemistry, metagenomics and its application in identifying novel genes and metabolic pathways for production of valuable chemicals and bioremediation.

Learning Activities

Lectures, workshops, practical work.

Notes

This module provides students with advanced knowledge of the principles and applications of the white, red and blue biotechnology and their impact in our society through an integrated knowledge of concepts. The focus is on the delivery of core knowledge, through a series of lectures, practical work and workshops.