

### Module Information

2022.01, Approved

#### Summary Information

Module Code	6105BCBMOL
Formal Module Title	Current Topics in Biotechnology
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

#### Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

#### Learning Methods

Learning Method Type	Hours
Lecture	30
Practical	15
Workshop	8

#### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

#### Aims and Outcomes

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.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Critically discuss the use of biocatalysts in the different fields of biotechnology.
MLO2	2	Critically discuss industrial practice in the synthesis of products across different fields of biotechnology.
MLO3	3	Critically discuss the design and operation of bioreactors.
MLO4	4	Demonstrate knowledge and understanding of a biotechnological application by completion of a case study.

### Module Content

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.
Module Overview	This module will enable you 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. The focus is on the delivery of core knowledge through a series of lectures, practical work and workshops.
Additional Information	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.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Report	50	0	MLO4
Centralised Exam	Examination	50	2	MLO1, MLO2, MLO3

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Ale Diaz	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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