

### Summary Information

<b>Module Code</b>	4110BCBMOL
<b>Formal Module Title</b>	Introduction to Biotechnology
<b>Owning School</b>	Pharmacy & Biomolecular Sciences
<b>Career</b>	Undergraduate
<b>Credits</b>	20
<b>Academic level</b>	FHEQ Level 4
<b>Grading Schema</b>	40

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Gavin McStay	Yes	N/A

#### Module Team Member

Contact Name	Applies to all offerings	Offerings
Femi Olorunniji	Yes	N/A
Sandra Fawcett	Yes	N/A
Nicholas Bryan	Yes	N/A
Baoxiu Qi	Yes	N/A
Glyn Hobbs	Yes	N/A
Kate Evans	Yes	N/A
Pattanathu Rahman	Yes	N/A

#### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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## Teaching Responsibility

<b>LJMU Schools involved in Delivery</b>
Pharmacy & Biomolecular Sciences

## Learning Methods

Learning Method Type	Hours
Lecture	36
Practical	9
Workshop	9

## Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-CTY	CTY	September	12 Weeks

## Aims and Outcomes

<b>Aims</b>	To introduce an overview in biotechnology and the main applications including bioprocessing. How the biotechnology industry has developed in different fields.
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## Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Recognise the differentiation of biotechnology processes into white, green, red and blue fields of research, and describe the principles of these fields.
MLO2	Describe the use of bioprocessing systems and their applications.
MLO3	Interpret and present biotechnological data.
MLO4	Present research findings as part of a group.

## Module Content

### Outline Syllabus

Overview in how biotechnology has become an important field nowadays. Principles of White, Green, Red and Blue biotechnology. Careers in biotechnology (lab and non-lab based). The business of biotechnology, companies, finance and market for biotechnological applications, legislation, ethics and management. Principles of bioprocessing operations and introduction to bioprocess development. Challenges associated. Cell culture, plant, mammalian, microbial as examples of bioprocessing. Bioreactors and fermenter systems: industrial applications. Principles of the production of biopharmaceuticals and their role in gene therapy, regenerative medicine, microbiome engineering and immunology. Biotechnology in agriculture and environment.

### Module Overview

This module provides an overview in biotechnology and the main applications including bioprocessing. You will explore how the biotechnology industry has developed in different fields.

### Additional Information

The module will be delivered through a series of lectures, practicals, and workshops.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Centralised Exam	Exam	50	2	MLO2, MLO1
Artefacts	Interpretation of lab data	50	0	MLO1, MLO4, MLO3