Liverpool John Moores University

Title:	Current Topics in Biotechnology
Status:	Definitive
Code:	**6502YAUBIO** (127890)
Version Start Date:	01-08-2021
Owning School/Faculty:	Pharmacy & Biomolecular Sciences
Teaching School/Faculty:	LJMU

Team	Leader
Baoxiu Qi	Y

Academic Level:	FHEQ6	**Credit Value:**	20	**Total Delivered Hours:**	100
Total Learning Hours:	200	**Private Study:**	100		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	96

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Exam relating to principles and techniques	33.5	2
Exam	AS2	Exam relating to current research and applications for sustainable agriculture and the environment	33.5	2
Presentation	AS3	Poster presentation	33	

Aims

The aim of the module is for students to develop an understanding of the importance and basic principles of plant biotechnology. Students will develop an understanding of the basic principles and techniques of plant molecular pharming and it's application in the production of pharmaceuticals for medicine and secondary

metabolites for industry. The module also aims to develop students' understanding of the potential of plant biotechnology in the improvement of crop yield and nutrition value, and in protection of the environment.

Learning Outcomes

After completing the module the student should be able to:

1	Outline the history and explain the importance of plant biotechnology.
2	Describe the principles and process of plant tissue and cell culture.
3	Explain how and why the plant transformation and genetic engineering could be achieved.
4	Discuss how plant genetic modification can be utilised to increase crop yield and nutrition.
5	Discuss how plant genetic modification can be utilised to preserve plant diversity.
6	Evaluate the strategies to produce biofuels through plant biotechnology.
7	Discuss how plant biotechnology could be utilised in reduction of fertiliser and pesticide in agriculture.
8	Discuss how plant genetic modification can be utilised to produce pharmaceuticals for treatment of cancer and other diseases.
9	Discuss how plant biotechnology could be utilised in the production of valuable industrial biomaterials.

Learning Outcomes of Assessments

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

Exam	1	2	3	
Exam	4	5	6	7
Presentation	8	9		

Outline Syllabus

The module will cover plant biotechnology including plant tissue and cell culture, plant genetic engineering and their potential applications in crop improvement. The module will also cover increased yields and nutrition values of crops, reduction in fertiliser and pesticide use, biofuel production, pharmaceuticals and biomaterials.

Learning Activities

The module content will be delivered through lectures. A list of relevant textbooks and scientific journal papers will be listed for further reading so that students can gain further knowledge of the topic.

Notes

The module is for students to develop an understanding of the principles and techniques of plant biotechnology, and applications in crop improvement, and in the pharmaceutical and biomaterial industry.