Microbial Biotechnology 2

Module Information

2022.01, Approved

Summary Information

Module Code	5115BCBMOL
Formal Module Title	Microbial Biotechnology 2
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	28
Practical	27
Workshop	3

Module Offering(s)

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

Aims and Outcomes

Aims	To demonstrate the principles of microbial growth and metabolism and to provide an appreciation of the action of antimicrobials. To provide a general introduction to the ecology of micro-organisms in a variety of habitats. To provide an understanding of the use of microorganisms in natural product formation.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Explain the principles of microbial growth and metabolism and appreciate the action of antimicrobials.
MLO2	2	Evaluate the importance of microorganisms in different environments
MLO3	3	Analyse microbial growth data
MLO4	4	Appraise the use of microorganisms in natural product formation

Module Content

Outline Syllabus	Microbial growth. Population growth in batch and chemostat culture; cell cycle; cell wall synthesis and assembly. Metabolism and nutrition. Substrate uptake; principles of bioenergetics, energy sources, pathways of carbohydrate breakdown, aerobic and anaerobic respiration, fermentation pathways. Biosynthesis of monomers and polymers. Regulation of metabolism. Fermentation processes. Microbial products: for example, antibiotics, enzymes, single-cell protein. Natural environments for microorganisms; qualitative and quantitative features of microbial populations inhabiting such environments; biofilms. Effects of physico-chemical conditions on microbial activity: pH, temperature, aeration, water potential, nutrient availability; extreme environments. Methods used for the study of microorganisms in their natural environments: isolation methods; microbial biomass and activity determinations.
Module Overview	This module is designed to develop your understanding of the physiology and behaviour of microorganisms populating various habitats with emphasis on their responses to particular physical and chemical conditions. It will also develop a broad understanding of the biotechnological importance of microorganisms.
Additional Information	This module is designed to develop an understanding of the physiology and behaviour of microorganisms populating various habitats with emphasis on their responses to particular physical and chemical conditions. It will also develop a broad understanding of the biotechnological importance of microorganisms.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Enumeration of microorganisms	20	0	MLO3
Report	Microbial characterisation	20	0	MLO2
Centralised Exam	Examination	60	2	MLO1, MLO2, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
George Sharples	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings