

Module Specification

Module Summary Information

1	Module Title	Introduction to Microbiology
2	Module Credits	20
3	Module Level	4
4	Module Code	BMS4005

5	Module Overview
<p>This module introduces students to the fundamentals of the microbial world. Students need to understand the important principles of how microorganisms function and survive before advancing to the topics where we explore the roles of microorganisms in disease. The module is designed to be challenging and thought-provoking by the inclusion of contemporary topics that feature heavily in the news and in daily life as well as addressing issues that are potentially life-threatening. Importantly, topics are also discussed that illustrate the importance of the microorganisms associated with the human body in maintaining a healthy state. Moreover, the module also examines how our lifestyles can affect the microbes associated with our bodies and how this may impact on human health for example, obesity and diabetes.</p> <p>Laboratory sessions complement the lectures, introducing important fundamental techniques used in microbiology. Students are then introduced to viruses, using bacterial viruses to demonstrate fundamental properties. Students are given swabs to investigate the microbiology of their homes inoculating the swabs onto a range of culture media to find out about the different microorganisms associated with different habitats. For the first assessment students are issued with different, unknown microorganisms to identify by performing a range of tests. Students are instructed to research the properties of a range of possible microorganisms and to compare with their unknown organism. Students write a detailed lab report describing the tests that they performed, the results obtained including evidence to support their conclusions. The students write a detailed explanation on how they reach their conclusions about their unknown organism.</p> <p>A second assessment requires students to design their own pathogen which will be assessed by designing a poster, in the style of a Wikipedia page, which will be defended. Students are encouraged to name their pathogen. This assessment will require students to research pathogens associated with their chosen part of the body, identify the strategies that those pathogens have evolved to evade host defences and cause damage to the host. Students' ability to explain how their pathogen works will be assessed by the quality and accuracy of their explanations in the Wikipedia post. Students will be encouraged to make their posters as realistic as possible by the inclusion of photos of actual pathogens associated with that part of the body, tables and figures that illustrate virulence properties, hyperlinks to references and a bibliography. Successful completion of this activity will provide an important primer for the second year BMS5002 Infectious Diseases module where we will explore the pathogens associated with different parts of the body.</p>	

6	Indicative Content
	1) Structure and function of the microbial cell components 2) Microbial taxonomy and identification 3) Microbial genetics, DNA transfer between microorganisms and DNA manipulation 4) Antibiotics and antibiotic resistance 5) The human body, mechanisms to protect against infection and microbial strategies to circumvent host defences 6) The human microbiome and its role in health and disease 7) Introduction to viruses 8) Introduction to yeasts and fungi 9) Uses of microorganisms in biotechnology .

7	Module Learning Outcomes	
	On successful completion of the module, students will be able to:	
	1	Describe and define the cellular components and lifestyles of a range of microorganisms.
	2	Explain how microorganisms are classified and identified
	3	Demonstrate understanding of the techniques used to isolate, grow and analyse a range of microorganisms in the laboratory.
	4	Explain the body's defence systems and how some microorganisms overcome them

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1,2,3	X		
4			X

9	Breakdown Learning and Teaching Activities	
Learning Activities	Hours	
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	48	
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	100	
Private Study (PS) includes preparation for exams	52	
Total Study Hours:	200	