UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Research Topics 1 in Medical Microbiology
Module Code	BIS6008-B
Academic Year	2020/1
Credits	20
School	School of Chemistry and Biosciences
Subject Area	Biomedical Science
FHEQ Level	FHEQ Level 6
Pre-requisites	BIS5008-B
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Synchronous)	26
Online Seminar (Synchronous)	13
Learning Objects Interaction	2
Directed Study	150
Laboratories	9

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

To develop an appreciation of 1) the work of the National Health Service, Public Health England, supporting agencies, and commercial microbiology laboratories in dealing with infectious disease; 2) the principles and practice of diagnostic microbiology, epidemiology and control of infectious disease.

To extend knowledge of antimicrobial chemotherapy, the causes and consequences of bacterial resistance, and the molecular basis of pathogenicity of selected bacteria and viruses. Also, to understand how these topics relate to, and inform strategies for preventing and controlling infectious disease.

To develop oral and written communication skills. To develop a critical appreciation of relevant laboratory methodologies.

Outline Syllabus
Introduction to UK infrastructure of the National Health Service, Public Health England and supporting agencies including microbiology diagnostic laboratories. Key and emerging methods used in diagnostic bacteriology. Application of molecular biology / rapid methods to diagnostics. Overview of chemistry, development, mode of action, applications/limitations of key classes of antibiotic (beta-lactams, aminoglycosides, tetracyclines, macrolides, fluoroquinolones). Antimicrobial sensitivity testing. Molecular mechanisms and drivers of antibiotic resistance including case studies of current issues. National / International response to problems of resistance. Infection Control within the Hospital. Investigation and control of outbreaks of infectious disease, emerging infectious diseases. National and International vaccination strategies. Microbial virulence factors (including toxins and adhesins) and their relevance to development of new therapeutic strategies and diagnostic tests.

Learning Outcomes	
Outcome Number	Description
LO1	Discuss the role and nature of work performed in clinical, public health and diagnostic microbiology laboratories and evaluate key methods used in detecting / identifying pathogens (HCPC standard 13).
LO2	Critically discuss the epidemiology and pathogenesis of selected infectious diseases and the role of antimicrobial chemotherapy and vaccination in the treatment and prevention of infectious disease at national and international levels. (HCPC standards 5, 13, 14).
LO3	Discuss current trends and modern techniques and their impact on microbiological practices in different countries. Critically appraise current microbiology research literature, conduct laboratory investigations, analyse data and write concise reports (HCPC standards 5, 13, 14).
LO4	Report, interpret and present scientific data, including evaluation of experimental design, using the correct scientific terminology (HCPC standards 3, 14, 10, 15).
LO5	Critically analyse and evaluate experimental data presented in the primary scientific literature to select and explain key complex aspects, which are at the forefront of the discipline (HCPC standards 1, 8, 13, 14).
LO6	Demonstrate knowledge and understanding of a range of appropriate research methodologies (HCPC standard 15).
LO7	Demonstrate an effective self-management of workload, time and resources to prepare and deliver concise oral reports (HCPC standards 1, 3, 8, 10, 14).

Learning, Teaching and Assessment Strategy

The core knowledge for this module is delivered in a series of on-line & on-site synchronous lectures and interactive workshops, supplemented by reference to current published scientific literature and policies, which requires extensive further reading and autonomous learning by the students.

During directed study hours, students are expected to undertake reading to consolidate and expand on the content of formal taught sessions; research and prepare for assessments; revise material from formal taught sessions; and undertake specific elements of reading as directed. Private study will be facilitated and supported via the use of the VLE which will provide materials and links to on-line microbiology resources and videos.

Students have a formative presentation session which involves group presentation and peer observation (LO 4-7).

Specific laboratory skills are developed in a series of practical classes and data analysis and interpretation skills are assessed by an examination and a practical report in the style of short research paper (LO1-3). The ability to source, then explain scientific information clearly and concisely is assessed by an individual oral presentation (LO4-7).

Reassessment of failed elements will be as per the initial method of assessment. Where reassessment of the laboratory practical element is required, students will be set an essay to write that covers the applications of similar investigative techniques.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Presentation	Individual oral presentation	15 mins	20%
Summative	Examination - Open Book	Complete two essays from a choice of five topics	2 hour	60%
Summative	Laboratory Report	Practical class material report (1000 words)	N/A	20%
Formative	Presentation	Peer observed formative group presentation	15 minutes	N/A

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.
