



Module Specification

Medical Microbiology

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Part 1: Information

Module title: Medical Microbiology

Module code: USSKBJ-30-3

Level: Level 6

For implementation from: 2022-23

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Applied Sciences

Module type: Standard

Pre-requisites: Microbial Life 2022-23, Studies in the Biology of Disease 2022-23

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: students must take one out of USSKAT-30-2 Studies in Biology of Disease or USSKAQ30-2 Microbial Life

Features: Module Entry requirements: Relevant background at level 2 or higher from undergraduate studies or professional experience/CPD considered appropriate by the module leader

Educational aims: See Learning Outcomes.

Outline syllabus: Detection of microbes: students will develop knowledge of the methods used in clinical laboratories to detect and diagnose infectious diseases. This includes standard culture and microscopy based methods, immunological diagnoses, infection control screening, the move towards automation and the increasing use of molecular technologies.

Taxonomy and classification: students will develop knowledge of the principles behind classification, the techniques used to classify microbes (bacteria, viruses, fungi and other parasites) and controversies that remain when attempting to classify microbes.

Epidemiology: students will develop knowledge of the core principles and techniques used in epidemiology of infectious diseases.

The host-microbe balance: students will develop knowledge of the relationship between host and microbes (bacteria, viruses, fungi and other parasites) in both health and disease. This includes a knowledge of the principles and pathogenicity; the human immune response and microbial strategies for subverting the response; the concept of the normal microbiota; microbial virulence factors, including the routes by which microbes acquire these factors, and the genetic mechanisms by which they control expression of the factors; biofilms and their role in microbial infections.

The control of infectious diseases in human populations: students will develop knowledge of antimicrobial drugs; vaccination; environmental control of diseases, vectors and reservoirs; disinfection and sterilisation.

Infectious diseases of key body systems: students will develop a deeper knowledge of infections of selected body systems such as the neurological system, genital tract, the respiratory tract and the gastrointestinal tract: covering the epidemiology of infections that are associated with the system; pathogenic and virulence traits of the infecting microbes; prevention and treatment of infections of the system; i.e. the host-microbe balance aspects of different infections will be developed. Examples

covered will be chosen to illustrate other fundamental microbiological principles such as “childhood infections”, zoonoses, noscomial infections, opportunistic pathogens, environmentally acquired infections and endogenous infections: topics will also be selected to reflect current key diseases of concern where outbreaks arise or government policy holds them to be of contemporary importance.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will have 72 hours of direct contact – this time will be split between lectures and tutorials/workshops to cover the delivery of the core material and also provide opportunities for discussion and evaluation of information.

Scheduled learning for this module primarily consists of lectures and tutorials.

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc. Students will also be required to spend a substantial amount of their independent learning hours on reputable website to gain the most up-to-date information on many of the topics covered in this module (and they will receive guidance on how to do this effectively and reliably).

An indicative breakdown of time required for the different aspects of independent learning is as follows:

Essential reading to support scheduled learning: 128 hours.

Coursework preparation and completion: 40 hours.

Examination preparation and revision: 60 hours.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate their knowledge of background theoretical constructs in microbiology such as classification and taxonomy, microbial detection and identification, pathogenicity principles; and to evaluate their use in the field of medical microbiology or to specific microbial agents where appropriate

MO2 Critically discuss the virulence and pathogenicity of a range of infectious agents (bacteria, viruses, fungi and other parasites); including reference to the concept of the host – microbe balance

MO3 Apply theoretical knowledge of pathogenicity, epidemiology, treatment and control of pathogens to selected examples of infectious diseases

MO4 To evaluate the impact that microbial infections have on regional/national populations, sub-populations and individuals in different geographical/economic/political/sociological settings

MO5 To demonstrate an up-to-date awareness of topical issues in medical microbiology

MO6 Review and evaluate the literature relevant to the area of medical microbiology

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/usskbj-30-3.html) via the following link <https://uwe.rl.talis.com/modules/usskbj-30-3.html>

Part 4: Assessment

Assessment strategy: In line with programme norms this module will have a A:B ratio of 50:50.

Component A is a three hour examination. Papers will be set with a range of questions to cover the breadth of module; and will be complementary to those set for the coursework.

Component B1 is a dual purpose assessment. Firstly, students work to collect information from the published literature to address a seen question, thereby matching the learning outcome to review and evaluate the public literature in the

relevant topics. Secondly, students write their essay under exam conditions enabling them to practice the techniques required for their final third year exams – students are given feed forward advice on their performance to enable them to improve their technique. This is particularly helpful for students that struggle in exams and for direct entry students in to year three.

Component B2 is a more traditional researched essay which further addresses the learning outcome regarding evaluation of the published literature but also enables the student to develop an in depth knowledge of an area of medical microbiology. Students have a degree of choice, but topics are chosen that have a “debatable” or at least discursive slant to them so that students have to express opinions and back them up with evidence. Again this provides practice in a core skill for the final exams.

The weighting between components B1 and B2 has been placed at 25:75 so that students that struggle in exam conditions are not disadvantaged too heavily by the coursework given that the controlled component is also an exam.

The resit has been set as an extended essay as there is no benefit to the student of sitting a seen essay by the time the resit period is reached.

Assessment components:

Written Assignment - Component B (First Sit)

Description: Researched essay (2000 words)

Weighting: 38 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Examination - Component A (First Sit)

Description: Three Hour Examination

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

In-class test - Component B (First Sit)

Description: In-class timed essay assignment (1 hour)

Weighting: 12 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Written Assignment - Component B (Resit)

Description: Extended research essay (3000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested:

Examination - Component A (Resit)

Description: Three Hour Examination

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Applied Biomedical Science {Top-Up}[Sep][FT][INTUNI][1yr] BSc (Hons) 2022-23

Healthcare Science (Infection Science) [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][SW][Frenchay][5yrs] MSci 2019-20

Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20

Healthcare Science (Infection Science) {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2020-21

Applied Biomedical Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][FT][Frenchay][4yrs] MSci 2020-21

Biomedical Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2019-20

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20

Biomedical Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20

Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19