



## MODULE SPECIFICATION

**Code:** USSJSF-20-1                      **Title:** Introduction to Microbiology                      **Version:** 2

**Level:** 1                      **UWE credit rating:** 20                      **ECTS credit rating:** 10

**Module type:** Standard

**Owning Faculty:** Health and Life Sciences                      **Department:** Applied Sciences

**Faculty Committee approval:** Quality and Standards Committee                      **Date:** July 2011

**Approved for Delivery by:** N/A

**Valid from:** September 2011                      **Discontinued from:**

**Pre-requisites:**  
None

**Co-requisites:**  
None

**Entry Requirements:**  
N/A

**Excluded Combinations:**  
None

### Learning Outcomes:

The student will be able to:

- demonstrate good laboratory practice and basic skills in the safe handling and containment of microorganisms
- discuss the diversity of microorganisms and their ubiquity
- discuss the interactions of microorganisms with each other and with plants and animals together with their role in the production of food and chemicals
- demonstrate basic skills of observation, measurement and data interpretation
- explain the importance of pathogenic bacteria, viruses, fungi and parasites
- describe current understanding of some topical issues in microbiology
- understand how the discipline of Medical Microbiology has evolved

### Syllabus Outline:

Introductory microbiology: range of size, nutrition and taxonomy of microorganisms. Eubacteria - main groups based on primary characteristics. Archaea. Fungi - main groups based on sexual reproduction.

Cultivation and control of microorganisms: Aseptic technique, microbiological culture media, selective and differential media, microbial growth. Laboratory safety; physical and chemical methods of control. Hazard groupings of microorganisms, containment categories for laboratories.

Food and industrial microbiology: microbial food spoilage, food poisoning and food-borne infections. Microorganisms used by the food industry, microbial production of antibiotics and complex organic molecules.

Microbial interactions: intermicrobial relationships; plant-microbe interactions; animal-microbe interactions, including an introduction to the human microbiota and to pathogenicity.

Medical microbiology - Development of the discipline: The history of medical microbiology: a review of the "golden age" of microbiology and its leading figures; the role of the medical microbiologist

today, including developments which aid in the understanding of pathogens and diagnostics.

Medical microbiology - Diseases: Coverage of a range of medically important bacteria, viruses, fungi and parasites: an overview of the range of diseases that microbes cause, from the trivial to the life-threatening.

Current issues in Medical Microbiology - Emerging and re-emerging pathogens: an evaluation of the re-emergence of illnesses (e.g. tuberculosis) to attempt to identify reasons for their return; consideration of the emergence of new diseases (e.g. SARS, haemorrhagic viruses).

### Teaching and Learning Methods:

The module will be delivered as a series of key lectures covering the topics listed above. These sessions will be supplemented with a combination of practical classes and workshops. Where possible, workshops will be student led with support from a tutor.

### Reading Strategy:

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.

### Indicative Reading List:

Current editions of microbiology and medical microbiology textbooks such as:  
Prescott, Harley & Klein's Microbiology 7th edition, McGraw Hill  
Brock Biology of Microorganisms 12th edition, Prentice Hall  
Jawetz, Melnick & Adelberg's Medical Microbiology, McGraw Hill  
Microbiology: a clinical approach, Garland Science

On-line archives such as:  
Health Protection Agency: <http://www.hpa.org.uk>  
Centers for Disease Control and Prevention: <http://www.cdc.gov/>  
World Health Organization: <http://www.who.int/en/>

### Assessment:

**Weighting between components A and B (standard modules only) A: 40% B: 60%**

### FIRST ATTEMPT

#### First Assessment Opportunity

#### Component A (*controlled*)

Description of each element

EX1 Examination (assessment period 2; 2 hours)

#### Element Wt (Ratio)

(*within Component*)

*Final Assessment* 1

**Component B**

Description of each element  
CW1 Portfolio of practical work  
CW2 Essay-based exercise

**Element Wt (Ratio)**  
(within Component)

1  
1

**Second Assessment Opportunity (Resit) further attendance at taught classes is not required**

**Component A** (*controlled*)

Description of each element  
EX2 Examination (assessment period 3; 2 hour)

**Element Wt (Ratio)**  
(within Component)

*Final Assessment* 1

**Component B**

Description of each element  
CW3 Case Study

**Element Wt (Ratio)**  
(within Component)

1

**EXCEPTIONAL SECOND ATTEMPT Attendance at taught classes is required.**

**Specification confirmed by** ..... **Date** .....  
(Associate Dean/Programme Director)