



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Pathophysiology of Disease (Premedical Sciences)				
Module Code	USSK63-30-1	Level	1	Version	1
Owning Faculty	Health and Applied Sciences	Field	Applied Sciences		
Contributes towards	Premedical Sciences Cert HE				
UWE Credit Rating	30	ECTS Credit Rating		30	ECTS Credit Rating
Pre-requisites	None		Co- requisites	None	
Excluded Combinations	None		Module Entry requirements	N/A	
Valid From	September 2014		Valid to	September 2020	

CAP Approval Date	28/03/2014
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Part 2: Learning and Teaching	
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> describe current understanding of topical issues in microbiology and understand how the discipline of Medical Microbiology has evolved (A1, B2, 3) discuss the diversity of microorganisms and their ubiquity and discuss the interactions of microorganisms with each other and with animals (A1, B2, 3) explain the importance of pathogenic bacteria, viruses, fungi and parasites and in particular with regard to the medically important diseases they may cause (A1, B3) describe some of the other major causes of human disease and explain their biological basis (A1, B3) explain the basis of disease response mechanisms such as inflammation, necrosis and cell death (A1, B3) discuss approaches to the investigation and diagnosis of selected disease processes (A1, B2, 3) demonstrate basic skills of observation, measurement and data analysis and interpretation in experiments concerning human diseases and basic skills in the safe handling and containment of microorganisms (in particular in a simulated clinical diagnostic work that allows appreciation of the interface with patients) (B1) <p>All learning outcomes will be assessed under the module components and elements therein as indicated.</p>
Syllabus Outline	<ul style="list-style-type: none"> Introductory microbiology: range of size, nutrition and taxonomy of microorganisms. The Bacteria - main groups based on primary characteristics.

	<p>Archaea. Fungi - main groups based on sexual reproduction.</p> <ul style="list-style-type: none"> • 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; 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). • General concepts and introduction to human disease, Characteristics of disease, Classification of disease, Health and disease • Overview of haemopoiesis, normal blood parameters and haemostasis and those relating to infection scenarios • Disorders of the liver and heart (atherosclerosis) will be described, also diabetes • Clinical cytogenetics, karyotype analysis and phenotypic expression of genetic abnormality • Cellular injury and death, The cell as the basis of life and disease, Cell death, necrosis and apoptosis • Acute and chronic inflammation, fluid, cellular and systemic aspects of inflammation, Patterns of inflammation, Toxicity and microbial infection • Disorders of Growth, Cellular Proliferation and Differentiation • Response of the Body to Immunologic Challenge by microbes and other foreign material, Cells and tissues of the immune system.
Contact Hours	<p>Students undertaking this 30 credit module can expect 78h of scheduled learning contact time with teaching staff, spread over the academic year. This contact time will occur during lectures (36h), practical sessions (24h), tutorials (12h) and during timetabled in class assessments (6h) in the form of MCQ tests.</p>
Teaching and Learning Methods	<p>Theoretical material within the module will be presented to the students in the form of weekly lectures throughout each of the semesters in the academic year. The learning of lecture content will be reinforced through time spent in independent learning by the directed reading of recommended texts and through the use of technology enhanced learning resources that will be provided online. A number of relevant practical sessions will be incorporated during each of the semesters and will be used to highlight important aspects of both biochemistry and genetics within an integrated biomedical and medical context. Practical sessions will both drive hands on learning and the acquisition of technical skills at both an individual and group working level. Online MCQ assessments will be used to further engage students in the development of their continual learning skills.</p> <p>Students undertaking this module can expect to receive 2h of lectures per week of the teaching period and would be expected to spend another 3h in independent learning while undertaking directed reading in relation to each of the lecture sessions. In addition to the lectures the students will undertake 8x2h practical classes across both semesters. For each of the practical classes the students should again expect to spend the same time in reading around the subject before and after each of these sessions. Each practical class will be followed by a 1h tutorial session. The students will also receive fortnightly 30min in class assessments that comprise online MCQs</p>

and which will test their knowledge gained during both lecture and practical sessions.

Scheduled learning includes lectures, practical classes, tutorials and in class assessment periods.

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc.

These sessions constitute an average time per level as indicated in the table below. Scheduled sessions may vary slightly depending on the module choices you make.

Key Information Sets Information

Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.

Key Information Set - Module data				
Number of credits for this module				30
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
300	78	222	0	300

The table below indicates as a percentage the total assessment of the module which constitutes a -

Written Exam: Unseen written exam

Coursework: Written assignment or essay, poster presentation

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

Total assessment of the module:	
Written exam assessment percentage	40%
Coursework assessment percentage	60%
	100%

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

	<p>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.</p> <ul style="list-style-type: none"> • 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	<p>Latest versions of the following:</p> <p>Core texts</p> <ul style="list-style-type: none"> • An introduction to human disease, pathology and pathophysiology correlations Crowley, Publisher: Jones and Bartlett • Currell G and Downman AA, Mathematics and Statistics for Science, Wiley-Blackwell. • Willey, J. M., Sherwood, L. M. & Woolverton, C. J. (2011). <i>Prescott's Microbiology 8th edition</i>. New York: McGraw Hill. • Brooks, G. F., Carroll, K. C., Butel, J. S., Morse, S. A. & Mietzner, T. (2010). <i>Jawetz, Melnick & Adelberg's Medical Microbiology 25th edition</i>. New York: McGraw Hill. <p>Other useful texts include:</p> <p>Haematology:</p> <ul style="list-style-type: none"> • A Beginner's Guide to Blood Cells. Bain. Publisher: Blackwell Publishers • Lecture Notes on Haematology. Hugh-Jones, Wickramasinghe and Hatton. Publisher: Blackwell Publishers • Case-Based Haematology. McCann, Foa, Smith and Conneally. Publisher: Blackwell Publishers <p>Clinical Biochemistry:</p> <ul style="list-style-type: none"> • Clinical Chemistry, Luxton. Publisher: Butterworth-Heinemann • Clinical Chemistry 5th edition, Marshall, Bangert, Publisher: C.V. Mosby • Clinical Biochemistry 3rd edition, An illustrated colour text, Gaw, Murphy, Cowan, Denis O'Relly, Stewart, Shepherd, Publisher: Churchill Livingstone <p>Immunology:</p> <ul style="list-style-type: none"> • How the Immune system works. Sompayrac, Publisher: Blackwell Publishers • Immunology (5th edition). Goldsby, Kindt, Kuby, Osborne, Publisher: WH Freeman and Co. <p>Pathology:</p> <ul style="list-style-type: none"> • Pathology. Steven and Lowe. Publisher: C.V. Mosby • Basic Pathology: An introduction to the Mechanisms of Disease Lakhani, Dilly, Finlayson, Dogan, Publisher: Arnold • The Biology of Disease, Phillips, Murray, Kirk. Publisher: Blackwell Publishers <p>Microbiology</p> <ul style="list-style-type: none"> • Madigan, M., Martinko, J., Stahl, D. & Clark, D. (2012). <i>Brock Biology of Microorganisms 13th edition</i>. San Francisco: Pearson. • Strelkauskas, A., Strelkauskas, J. & Moszyk-Strelkauskas, D. (2010). <i>Microbiology: a clinical approach</i>. New York: Garland Science.

Assessment Strategy	<ul style="list-style-type: none"> Summative assessment for this module will be provided using a number of approaches. The nature of the premedical sciences programme to which this module contributes requires continuous and final assessment of student learning and a measure of their acquisition of both oral and written presentation skills of analysed data. Continuous assessment within component B will be provided by the use of frequent multiple choice question tests throughout the module and following blocks of learning provided in the form of lectures. These tests will be provided online, marked automatically and the results provided to the module leader. Feedback at this level will also be provided online and will be by review of the tests after they have been completed and will include the correct answers and the rationale behind these. The ability of the students to write scientifically, analyse data and present their work will be assessed under component B in the form of an oral presentation of a scientific poster and also a written assignment, either an essay based or practical report write up. These will be marked and feedback provided in the form of written comments. Final assessments under component A will take the form of an examination that comprises short answer and multiple choice questions.
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Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	A:	B:
	40	60
First Sit		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. EX1 Examination Exam Period 2 (3h) FINAL ASSESSMENT	100%	
Component B		
Description of each element	Element weighting (as % of component)	
1. CW1 Poster Presentation	25%	
2. CW2 Written assignment	25%	
3. CW3 MCQ Tests	50%	

Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. EX2 Examination Exam Period 3 (3h) FINAL ASSESSMENT	100%	
Component B		
Description of each element	Element weighting (as % of component)	
1. CW1 Poster Presentation	50%	
2. CW2 Written assignment	50%	

If a student is permitted an **EXCEPTIONAL RETAKE** of the module the assessment will be that indicated by the Module Description at the time that retake commences.