



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Infectious Disease Control				
Module Code	USSKBU-30-3	Level	3	Version	1
Owning Faculty	Health and Applied Science	Field	BBAS		
Contributes towards	BSc (Hons) Healthcare Science (Life Science)				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	Studies in Biology of Disease (USSKAT-30-2)	Co- requisites			
Excluded Combinations		Module Entry requirements	Relevant background at level 2 or higher from undergraduate studies or professional experience/CPD considered appropriate by the module leader		
Valid From	September 2016	Valid to	September 2022		

<b>CAP Approval Date</b>	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"> <li>• Demonstrate an in-depth knowledge of the modes of action and uses of a range of antimicrobial agents (component A, component B)</li> <li>• Demonstrate an in-depth knowledge of the mechanisms of resistance to antimicrobial agents (component A)</li> <li>• Demonstrate an in-depth knowledge of the genetic basis of resistance to antimicrobial agents (component A)</li> <li>• Evaluate the wider issues associated with resistance to antimicrobial resistance (component A, component B)</li> <li>• Demonstrate an in-depth knowledge of the interaction between microbes and the immune system, including the theory and application of vaccines in the control of microbes (Component A, Component B)</li> <li>• Evaluate the impact of a range of control strategies on the incidence of microbial diseases (Component A, Component B)</li> <li>• Demonstrate an in-depth understanding of the epidemiological principles required to underpin the study of antimicrobial resistance and the impact of other prevention strategies (Component A, Component B)</li> </ul> <p>The topics covered by the options given for assessment component B will vary each</p>

	<p>year to cover topical issues where possible (and to reduce possibility of copying previous students work). Exam questions each year will be complementary to the coursework questions to maintain coverage of the syllabus.</p>
Syllabus Outline	<ul style="list-style-type: none"> <li>• Antibacterial agents - bacterial cell envelope as a target Gram positive and Gram negative cell envelope structure; cell wall (peptidoglycan) synthesis and structure, antibacterial agents that target the cell wall and antibacterial agents that affect membrane integrity (peptides): proposed modes of action and overview of uses</li> <li>• Antibacterial agents - bacterial protein synthesis, RNA and DNA as targets Review of protein synthesis in prokaryotic cells; survey of agents which target bacterial protein synthesis, proposed modes of action and overview of uses Essential features of RNA and DNA synthesis in prokaryotic cells, highlighting targets for antibacterial agents; agents that affect DNA synthesis and integrity; agents targeting RNA synthesis; agents indirectly affecting nucleic acid synthesis via inhibition of folate synthesis</li> <li>• Antimicrobial agents: range, scope, use and alternatives Antifungals, antivirals, biocides; non-clinical use of antimicrobial agents, alternative strategies to conventional antimicrobial therapy</li> <li>• Resistance to antimicrobials Genetic basis of resistance: mutation, plasmids, transposons, integrons Mechanisms of resistance: inactivation, target site alteration, drug uptake and efflux, alternative pathways/molecules, microbial physiological aspects Testing for resistance: susceptibility testing, MICs, MBCs Drivers of resistance: issues associated with antimicrobial use</li> <li>• Immune Response and Vaccination Immunological system with focus on the interaction with microbes and the response to vaccines. Vaccine programme in the UK and other countries, evaluation of the impact of vaccination.</li> <li>• Environmental control strategies A range of strategies including (but not limited to) water treatment, food processing, control of pathogens in animals, vector control</li> <li>• Epidemiological principles and practice Incidence, prevalence, relative risk and other key concepts of epidemiology with a focus on how these concepts are used in relation to monitoring antimicrobial resistance and in decisions regarding the adoption of control strategies and assessing their efficacy</li> </ul>
Contact Hours	<p>This module will be delivered over one semester at the same time as USSJ5S-15-3 (Antimicrobial Agents). Thirty-six hours will be delivered as co-taught material with students on USSJ5S-15-3, the other 36 hours will be used to cover the material that is unique to this module. The material will be delivered through lectures and tutorials, and supported by self-directed learning.</p>
Teaching and Learning Methods	<ul style="list-style-type: none"> <li>• Scheduled learning is by a structured programme of lectures and tutorials, including discussion sessions. These are designed to deliver the relevant knowledge required for the syllabus and completion of the learning outcomes.</li> <li>• Student learning will be supported through the University Online Learning</li> </ul>

Environment (OLE; Blackboard) through provision of/direction to peer-reviewed publications to guide independent study. The OLE will be utilised to direct learners to relevant online resources for example the British Society for Antimicrobial Chemotherapy where contemporary policy documents are held and external online seminars hosted; and to relevant databases for the analysis of epidemiological data.

- Students are expected to undertake 72 hours of scheduled learning and 228 hours of independent learning

**Scheduled learning** includes lectures and tutorials.

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

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.

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				20
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
300	72	228	0	300

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

**Written Exam:** Unseen written exam, open book written exam, In-class test

**Coursework:** Written assignment or essay, report, dissertation, portfolio, project

**Practical Exam:** Oral Assessment and/or presentation, practical skills assessment, practical exam

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	60%
Coursework assessment percentage	40%
Practical exam assessment percentage	0%
	100%

Reading Strategy	<p>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.</p> <p>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>
Indicative Reading List	<p><b>Textbooks</b>  Most recent editions – editions as at time of writing listed, to be amended in module guides as new editions released</p> <p><i>Finch, R., Davey, P., Wilcox, M.H. &amp; Irving, W. Eds.(2012) Antimicrobial Chemotherapy 6<sup>th</sup> Ed. Oxford: Oxford University Press</i></p> <p><i>Scholar, E.M. and Pratt, W.B. (eds.).(2000) The Antimicrobial Drugs 2<sup>nd</sup> ed. Oxford: Oxford University Press.,</i></p> <p>Coggon, D. (2003) <i>Epidemiology for the Uninitiated</i> 5<sup>th</sup> ed., London: BMJ Publishing</p> <p>Punt, O.J. &amp; Stranford, S. (Eds) (2012) <i>Kuby Immunology</i> 7<sup>th</sup> ed. Basingstoke: Macmillan Higher Education.</p> <p>The indicative text books will be supported by direction to <b>peer-reviewed journals</b> including the following:</p> <p>Antimicrobial Agents and Chemotherapy  International Journal of Antimicrobial Agents  Journal of Antimicrobial Chemotherapy  Microbiology  Trends in Microbiology  Current Opinion in Microbiology  Microbiology and Molecular Biology Reviews  Epidemiology and Infection</p>

### Part 3: Assessment

<b>Part 3: Assessment</b>	
Assessment Strategy	<ul style="list-style-type: none"> <li>• The assessment of this module is designed to test the breadth and depth of students' knowledge in addition to their ability to critically evaluate the subject based on the evidence provided in both the taught and independent learning areas.</li> <li>• The controlled component is a three hour unseen essay based examination consistent with the Departmental strategy for assessment of Level 3 modules. This allows students to present their knowledge and understanding of the subject and to demonstrate their ability to construct a structured evidence based response to the questions. A choice of questions will encompass the module Learning Outcomes. The paper will be different to that of USSJ5S-15-3 to reflect the wider syllabus of this module.</li> <li>• The "antimicrobial agents" related coursework (co-administered with students on USSJ5S-15-3) will consist of a journal-based exercise where students will be required to identify, synthesise and critically evaluate information from the published literature regarding the</li> </ul>

	<p>usage of and resistance to antimicrobial agents. This will provide students with the opportunity to develop and receive summative feedback on their writing skills whilst providing a discriminator for students who are able to critically evaluate the more complex aspects of antimicrobial resistance.</p> <ul style="list-style-type: none"> <li>• The second coursework assessment will be an epidemiological data analysis question designed to enable students to show that they can handle epidemiological data appropriately and interpret its meaning in a logical manner</li> <li>• The immunology aspect of the module will therefore always be covered within the exam to ensure that this aspect of the syllabus is addressed</li> <li>• Formative feedback will be provided throughout the module via tutorial and discussion sessions accompanied by in-class quizzes and direction to useful external formative resources using the OLE.</li> </ul>
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Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	<b>A:</b>	<b>B:</b>
	<b>60</b>	<b>40</b>
<b>First Sit</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Written Exam (3 hours)	100	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Journal Based Exercise	50	
2. Epidemiological Analysis Exercise	50	

<b>Resit (further attendance at taught classes is not required)</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Written Exam (3 hours)	100	
2.(etc)		
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Journal Based Exercise	50	
2. Epidemiological Analysis Exercise	50	
If a student is permitted an <b>EXCEPTIONAL RETAKE</b> of the module the assessment will be that indicated by the Module Description at the time that retake commences.		