University of the West of England
BRISTOL

ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Pathophysiology of Disease					
Module Code	USSJT7-30-1		Level	1	Version	1.3
UWE Credit Rating	30	ECTS Credit Rating	15	WBL module?	No	
Owning Faculty	Health and Applied Sciences		Field	Biological, Biomedical and Analytical Sciences		
Department	Biological, Biomedical and Analytical Sciences		Module Type	Standard		
Contributes towards	FdSc Healthcare Science BSc (Hons) Healthcare Science (Life Science)					
Pre-requisites	None		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements	None		
First CAP Approval Date	21st November 2012		Valid from	September 2015		
Revision CAP Approval Date			Revised with effect from	September 2015		

Review Date	

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to (assessment intended for each learning outcome designated by [*] corresponding to assessment section): • Gain an appreciation of the science underpinning all disciplines within the Biomedical Healthcare Sciences [A1, A2, B1] • Discuss the diversity of microorganisms and their ubiquity [A2] • Explain the importance of pathogenic bacteria, viruses, fungi and parasites in the context of Medical Microbiology, including food microbiology [A2] • Describe some of the major causes of human disease and explain their biological basis [A1, A2, B1] • Describe current understanding of some topical issues in the microbiology of disease [A2] • Explain the basis of disease response mechanisms such as inflammation, necrosis and cell death [A1] • Discuss approaches to the investigation and diagnosis of selected disease processes [A1, A2, B1] • Demonstrate good lab practice, basic practical and analytical skills in a simulated lab setting [B2]
Syllabus Outline	This module provides the learner with essential knowledge and understanding of the pathophysiology of disease.

	• **Haematology**: Overview of haemopoeisis, normal blood parameters and haemostasis. Outline of the aetiology and pathogenesis of anaemia, haemorrhagic and thrombotic disorders. Blood groups and blood grouping. An introduction to transfusion to transfusion medicine. Introduction to anaemia, white blood cells, and their role in disease. • **Diseases of the liver and diabetes**: Causes of liver disease. Diabetes: types, prevalence and clinical presentation. Diagnosis of these diseases. Overview of biochemical markers of these diseases. • **Carcinogenesis and Neoplasia**: Agenesis, aplasia, hypoplasia, atrophy, hypertrophy and hyperplasia. Metaplasia and dysplasia. Neoplasia – benign and malignant neoplasms. Neoplasm-host interaction. Carcinogenesis. • **Acute and chronic inflammation**: Fluid, cellular and systemic aspects of inflammation. Patterns of inflammation. Toxicity and infection. • **Cells and tissues of the immune system**: Antigens, antibodies, antigenicity, specificity, memory, tolerance and autoimmunity. Overview of cellular and humoral immunity. • **Cellular injury and death**: The cell as the basis of life and disease. The aims of the cellular pathology based lectures will be to provide an introduction to the study of disease in mammalian tissues by looking at necrosis and mechanisms and manifestations of sub-lethal cellular injury e.g. ischaemia. Cell death – necrosis and apoptosis. • **Cytogenetics and disease**: Clinical cytogenetics, karyotype analysis and phenotypic expression of genetic abnormality. • **Atherosclerosis**: The aetiology and pathogenesis of arterial disease, atherosclerosis. • **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. • **Food 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. Vaccination. • **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).
Contact Hours	There will be 3 weeks of contact time at UWE in 3 x 1 week blocks. Included in each block week are laboratory workshops, lectures and tutorials. The contact time will equate to approximately 8 hours per block (a total of 24 hours). In addition to the allocated hours on campus learning, students will engage in synchronous and asynchronous online learning. This will comprise a total of approximately 48 hours of online engagement through a combination of lectures, synchronous online tutorials, synchronous and asynchronous discussions, online quizzes, and collaborative group work.
Teaching and Learning Methods	The strategy of this module is to provide a platform for students to gain an understanding of the pathophysiology of disease.

	Students are expected to spend 72 hours on scheduled learning and 228 hours on independent learning. Theoretical material within the module will be presented to the students in the form of regular lectures throughout each of the semesters in the academic year. During those times of work based learning, these lectures will be delivered online and involve a number of technological enhancements. 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. This online learning and engagement will be delivered through several avenues: • Synchronous online tutorials in protected learning time where the student will contribute/attend an online activity appropriate to the content at the time at which the academic will be present online to facilitate and lead this scheduled/timetabled session. This tutorial will be themed/planned. • Asynchronous discussions in the student's own time (or during protected time where permitted and appropriate) where they will engage/collaborate with other students on the course or in specified groups, and in which the academic is permitted to moderate where necessary, but is not expected to contribute. • Synchronous surgery sessions timetabled for a specific time in which the academic will be available online to answer live questions via discussion boards/blogs/collaborate or to respond to questions posted/asked prior to the session. • Interactive, online formative quizzes made available either following a particular package of knowledge exchange/learning, or in specified sessions/time periods. • Lectures delivered online through a combination of one or more of the following: visual/audio/interactivity/personal formative assessment Practical classes will include simulated case-study based investigations which will allow students to develop their analytical, interpretive and data handling skills; these skills will be assessed via a poster presentation. The remainder of the independent learning time allocated to the module should be spent preparing written assessments for submission [B1, B2], and undertaking revision for the exams [A1, A2]. **Scheduled learning** includes lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop. **Independent learning** includes hours engaged with essential reading, case study preparation, 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	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	40%
Coursework assessment percentage	60%
Practical exam assessment percentage	0%
	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 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.

A detailed reading list will be made available through relevant channels, e.g. module handbooks, Blackboard, etc.

Indicative Reading List	Students may be expected to consult the following texts: **Microbiology and Medical Microbiology:** Willey, J.M., Sherwood, L and Woolverton, C.J. (2011) *Prescott's Microbiology.* 8th ed. New York: McGraw Hill. Madigan, M.T. (2009) *Brock Biology of Microorganisms.* 13th ed. Boston: Pearson. Brooks, G.F. (2010) *Jawetz, Melnick & Adelberg's Medical Microbiology.* New York: McGraw Hill. Strelkauskas , A.J. , Strelkauskas , J. and Moszyk-Strelkauskas, D. (2010) *Microbiology: a Clinical Approach.* New York: Garland Science. **Haematology:** Bain, B.J. (2004) *A Beginner's Guide to Blood Cells*. Oxford: Blackwell Publishers. Hugh-Jones, N.C.(2004) *Lecture Notes on Haematology*. Oxford: Blackwell Publishers. McCann, S., Foa, R., Smith, O. and Conneally, E. (2004) *Case-Based Haematology*. Oxford: Blackwell Publishers. **Clinical Biochemistry:** Marshall, W.J. and Bangert, S.K. (2007) *Clinical Chemistry.* 5th ed. London: C.V. Mosby. Gaw, A. (2005) *Clinical Biochemistry: an illustrated colour text.* 3rd ed. Edinburgh: Churchill Livingstone. **Cytogenetics and disease:** Turnpenny, P.D. and Ellard, S. (2004) *Emery's Elements of Medical Genetics*. Edinburgh: Churchill Livingstone. Connor, J.M., Ferguson-Smith, M.A. and Tobias, E. (1997) *Essential Medical.* Oxford: Blackwell Science. **Immunology:** Sompayrac, L. (2002) *How the Immune system works*. Oxford: Blackwell Publishers. Owen, Punt, and Stranford, (2013) *Kuby Immunology.* 7th ed. New York: WH Freeman and Co. **Cellular Pathology:** Stevens, A. and Lowe, J. (2000) *Pathology.* New York: C.V. Mosby. Lakhani, S.R. (2003) *Basic Pathology: An introduction to the Mechanisms of Disease.* London: Arnold. Phillips, J., Murray, P. and Kirk, P. (2001) *The Biology of Disease.* Oxford: Blackwell Publishers. Crowley, L.V. (2004) *An introduction to human disease, pathology and pathophysiology correlations.* Sudbery: Jones and Bartlett.

	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/

Part 3: Assessment	
Assessment Strategy	The Assessment Strategy has been designed to support and enhance the development of both subject-based and more general skills, whilst ensuring that the modules learning outcomes are attained, as described below. **Component A** The written exams will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics through a series of short answer questions, and more in-depth knowledge though a selection of medium length questions. **Component B** The first element of this component is a summative poster presentation based on the results and interpretation of extended simulated case study. This is designed to capture both the taught (during the online learning) and practical elements (through the block releases) of the module. The second element tests the ability of the students to write scientifically and analyse data in the form of a laboratory book write up. Formative feedback is available to students throughout the module through group discussions, and in workshops. Students are provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the extensive support materials supplied through Blackboard. All work is marked in line with the Department's Generic Assessment Criteria and conforms to university policies for the setting, collection, marking and return of student work. Where an individual piece of work has specific assessment criteria, this is supplied to the students when the work is set. This assessment strategy has been designed following best practice on effective assessment from JISC (http://www.jisc.ac.uk/whatwedo/programmes/elearning/assessment/digiassess.aspx) and The Open University's Centre for Excellence in Teaching and Learning (http://www.open.ac.uk/opencetl/centre-open-learning-mathematics-science-computing-and-technology/activities-projects/e-assessment-learning-the-interactive-comp). Technical design and deployment of the activities will also follow best practice developed at UWE by the Education Innovation Centre in collaboration with academic colleagues across the university. Staff guidance and support are already in place (http://info.uwe.ac.uk/online/Blackboard/staff/guides/summative-assessments.asp).

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. Examination (1.5 hours)	50%
2. Examination (1.5 hours)	50%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Case study (poster)	50%
2. Laboratory handbook	50%

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Examination (3 hours)	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Case study and laboratory book write up	100%
If a student is permitted a retake of the module under the University Regulations and Procedures, the assessment will be that indicated by the Module Description at the time that retake commences.	