



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Physiological and Immunological Systems				
Module Code	USSKAS-30-2	Level	2	Version	1
Owning Faculty			Field	Applied Science	
Contributes towards	BSc Biomedical Science BSc Biomedical Science (Clinical) BSc Healthcare Sciences (Physiological Sciences)				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	USSKA3-30-1 Human Anatomy and Physiology		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"> • explain the principles of operation of the major physiological systems (as in the condition of health), with particular reference to homeostasis • demonstrate basic knowledge of the cellular and molecular aspects of immunology; • distinguish the role of humoral and cellular mechanisms in response to a wide spectrum of pathogens and antigens; • relate particular practical investigative instrumentation / techniques in human physiology and pharmacology to the principles of operation noted above; • evaluate important laboratory immunological techniques and their theoretical bases • interpret data derived from practical investigations of physiology and immunology and employ good laboratory practice.
Syllabus Outline	<p>Physiological Systems</p> <ul style="list-style-type: none"> • cardiovascular system: cardiac muscle and intrinsic properties of the heart; extrinsic control; vascular system and peripheral resistance; regulation of

	<p>cardiovascular parameters such as blood pressure;</p> <ul style="list-style-type: none"> • review of neural and endocrine communication systems related to homeostatic control; somatic and autonomic nervous system; somatic neuromuscular control; types of muscle as effectors; • respiration: mechanics of lung ventilation; neural and chemical control; gas exchange and transport including acid-base considerations • digestion: structure and functional differentiation of human digestive tract; examples of integration of neural and endocrine control of motility and digestive secretions; • endocrinology: selected examples from the endocrine system will be used to illustrate the role of hormones in homeostatic systems; • renal physiology: nephron form and function; measures of function such as clearance; fluid, electrolyte and acid-base balance; endocrinology as appropriate, including ADH, Aldosterone, ANP, Renin-Angiotensin system • Bone physiology: cellular signalling mechanisms involved in bone remodelling <p>Immunology</p> <ul style="list-style-type: none"> • The host and environment, antigens, foreignness, innate and acquired immunity • Innate immune mechanisms, the problem of immune recognition, immunogens and antigens • Recognition of self and tolerance • B cells, epitopes, and antibodies • Recognition of antigens by T cells, the major histocompatibility complex, and antigen presentation • Cell-mediated immune reactions • Basic structure of antibodies, antibody classes, isotypes, allotypes and idiotypes, monoclonal antibodies • Biological functions of antibodies and complement • Antigen–antibody interactions; detection and measurement of antibodies • Different types of immune cells and the lymphatic system • The humoral response, T–B cell interactions, cytokines and memory cells
Contact Hours	<p>The contact hours (72) are distributed as follows:</p> <p>36 hours of lectures 36 hours of practicals</p>

In addition to the described contact time, this material will be supported through online learning material, including online quizzes and technology enhanced lecture material.

Independent learning: Using defined TEL strategies includes hours engaged with essential reading, data handling, statistical analysis and presentation etc.

Teaching and Learning Methods

This module will be delivered in discrete sections, following the subject areas outlined in the syllabus. Each topic area will be introduced with underpinning lectures followed by a series of laboratory practical session which will illustrate consolidate, amplify and test key principles within the syllabus content . Tutorial support will be given during incubation times in the immunology practicals, and this may include revision prior to assessments

Guided reading will be provided in advance of lectures and will direct the student to both preparative and supplementary information sources. Copies of all hand-outs will be available on Blackboard. A Web site has been constructed which links to some of the best available information sources on the internet. All links have been investigated for their validity and usefulness in this context

Independent learning: In addition to lectures and practical sessions students are expected to engage in independent reading where core textbooks and journals are highlighted. This extended reading will help support student for examination preparation. The expected time given to this aspect is 228 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 30

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



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

Written Exam: Two Unseen written exams , Weighting between Exams A and B A: 50% B: 50%
Exam A at the end of semester 1
Exam B at the end of semester 2

Coursework: None

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:

	<p>Total assessment of the module:</p> <p>Written exam assessment percentage</p> <table border="1" data-bbox="1123 259 1262 378"> <tr> <td>100%</td> </tr> <tr> <td> </td> </tr> <tr> <td> </td> </tr> </table> <p>100%</p>	100%		
100%				
<p>Reading Strategy</p>	<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>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.</p> <p>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.</p> <p>A detailed reading list will be made available through relevant channels, e.g. module handbooks, Blackboard, etc.</p>			
<p>Indicative Reading List</p>	<p>Goldsby, R.A, Kindt, T.J. Osborne, B.A. and Kubby, J.KUBY: Immunology 5th ed. WH Freeman Ltd.</p> <p>Male, D, Bronstoff J, Roth, D.B. and Roitt, I. ROITT: Immunology 7th ed. Philedelphia, PA: Elsevier Ltd.</p> <p>Silverthorn, D.U. <i>Human Physiology. An integrated approach.</i> 5th ed. San Francisco, CA: Benjamin Cumming Ltd</p> <p>Other suggested reading:</p> <p>Coico, R, Sunshine, G and Benjamini, E. <i>Immunology: A short course</i> 5th ed. New York: John Wiley & Sons.</p> <p>Peakman, M. and Vergani, D. <i>Basic and Clinical Immunology.</i> Edinburgh: Churchill Livingstone.</p> <p>Roitt, I.M. and Delves, P.J.<i>Roitt's Essential Immunology</i> 10th ed. Oxford: Blackwell.</p> <p>Rabson, A. Roitt, I.M. and Delves, P.J. <i>Really Essential Medical Immunology</i> 2nd ed. Oxford: Blackwell.</p> <p>Male, D. Cooke, A. Owen, M. Trowsdale, J. and Champion, B.<i>Advanced Immunology</i> 3rd ed. London: Mosby-Elsevier.</p> <p>Todd, I. and Spickett, G. <i>Lecture Notes: Immunology</i> 5th ed. Oxford: Blackwell</p> <p>Stanfield,C.L. and Germann, W.J. <i>Principles of Human Physiology</i> Boston, Mass.:Pearson Education.</p> <p>Silverthorn, D. (2006) <i>Human Physiology.</i> Prentice Hall ISBN 0-13-017697-4</p> <p>Berne,R., Levy,M. (2008) <i>Principles of Physiology.</i> Int.Student Edn London: Mosby</p> <p>Marieb,E. (2008) <i>Human Anatomy and Physiology</i> San Francisco, CA: Benjamin Cummings</p> <p>Tortora,G. et.al. (2006) <i>Principles of Anatomy and Physiology</i> Hoboken, NJ: Wiley</p>			

and relevant Journals in Biological and Biomedical Science

Part 3: Assessment

Assessment Strategy	<p>The assessment will cover the broad curriculum via two examinations at the end of each semester.</p> <p>Exams are 2 hours long which will assess both lecture and practical material using a combination of MCQs and short answer questions.</p>
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Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	A:	B:
	50%	50%
First Sit		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. EX1 Examination (2hrs)	100%	
Component B Description of each element	Element weighting (as % of component)	
1. EX2 Examination (2hrs)	100%	

Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. EX1 Examination (2hrs)	100%	
Component B Description of each element	Element weighting (as % of component)	
1. EX2 Examination (2hrs)	100%	
<p>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.</p>		