



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Physiological Systems and Immunology				
Module Code	USSKAS-30-2	Level	2	Version	1.1
Owning Faculty	Health and Applied Sciences	Field	Applied Science		
Contributes towards	BSc (Honours) Applied Biomedical Science BSc (Honours) Biomedical Science (Clinical) BSc (Honours) Healthcare Sciences (Physiological Sciences)				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	Anatomy and Physiology (USSKA3-30-1)	Co- requisites	None		
Excluded Combinations	None	Module Entry requirements	N/A		
Valid From	September 2015	Valid to	September 2021		

CAP Approval Date	24 March 2015
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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 (assessed in Components A, B2) • demonstrate basic knowledge of the cellular and molecular aspects of immunology (assessed in Components A, B1) • distinguish the role of humoral and cellular mechanisms in response to a wide spectrum of pathogens and antigens;(assessed in Components A, B1) • relate particular practical investigative instrumentation / techniques in human physiology and pharmacology to the principles of operation noted above; assessed in Components A, B2) • evaluate important laboratory immunological techniques and their theoretical bases (assessed in Components A, B1) • interpret data derived from practical investigations of physiology and immunology and employ good laboratory practice (assessed in Components A, B1, B2).
Syllabus Outline	Indicative list of content for both physiological and immunological systems:

Physiological Systems

- cardiovascular system: cardiac muscle and intrinsic properties of the heart; extrinsic control; vascular system and peripheral resistance; regulation of cardiovascular parameters such as blood pressure;
- review of neural and endocrine communication systems related to homeostatic control; somatic and autonomic nervous system; sensory physiology, 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
- metabolism and growth: digestion; structure and functional differentiation of human digestive tract; examples of integration of neural and endocrine control of motility and digestive secretions; metabolism and energy balance
- 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

Immunology

- 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> <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.</p> <p>Independent learning: Using defined TEL strategies includes hours engaged with essential reading, data handling, statistical analysis and presentation etc.</p>										
Teaching and Learning Methods	<p>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</p> <p>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</p> <p>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.</p>										
Key Information Sets Information	<p>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.</p> <p><u>Key Information Set - Module data</u></p> <p><i>Number of credits for this module</i> 30</p> <table border="1" data-bbox="400 1559 1171 1753"> <thead> <tr> <th>Hours to be allocated</th> <th>Scheduled learning and teaching study hours</th> <th>Independent study hours</th> <th>Placement study hours</th> <th>Allocated Hours</th> </tr> </thead> <tbody> <tr> <td>300</td> <td>72</td> <td>228</td> <td></td> <td>300</td> </tr> </tbody> </table> <p style="text-align: right;"></p> <p>The table below indicates as a percentage the total assessment of the module which constitutes a -</p> <p>Written Exam: One unseen written exam (100%) at the end of semester 2 35% B: 65%</p> <p>Coursework: Two courseworks, weighing between coursework 1 and 2: CW1: 35%, CW2:65%</p>	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	300	72	228		300
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours							
300	72	228		300							

CW1 will be assessed in semester 1
 CW2 will be assessed in semester 2

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	50%
Coursework assessment percentage	50%
	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

KUBY: Immunology (5e). Goldsby RA, Kindt TJ, Osborne BA and Kuby J. WH Freeman Ltd.
 ROITT: Immunology (7e) Male D, Bronstoff J, Roth DB and Roitt I. Elsevier Ltd.
 SILVERTHORN: Human Physiology. An inetegrated approaceh. (5e) Benjamin Cumming Ltd

Other suggested reading:

Immunology: A short course (5e). Coico R, Sunshine G and Benjamini E. John Wiley & Sons, Inc.

Basic and Clinical Immunology. Peakman M and Vergani D. Churchill Livingstone.

Roitt's Essential Immunology (10e). Roitt IM and Delves PJ. Blackwell.

Really Essential Medical Immunology (2e). Rabson A, Roitt IM and Delves PJ. Blackwell.

Advanced Immunology (3e). Male D, Cooke A, Owen M, Trowsdale J and Champion B. Mosby.

Lecture Notes: Immunology (5e). Todd I and Spickett G. Blackwell

Principles of Human Physiology by Cindy L. Stanfield and William J. Germann Pearson Benjamin

Cummings.Principles of Human Physiology by William J. Germann and Cindy L.

Stanfield (Hardcover - 23 April 2004) Pearson Benjamin Cummings.
 Silverthorn, D (2006) Human Physiology. Prentice Hall ISBN 0-13-017697-4
 Berne,R., Levy,M. (2008) Principles of Physiology. Mosby Int.Student Edn.
 Marieb,E. (2008) Human Anatomy and Physiology Benjamin Cummings
 Tortora,,G., et.al. (2006) Principles of Anatomy and Physiology Harper and Row
 and relevant Journals in Biological and Biomedical Science

Part 3: Assessment

Assessment Strategy	<p>The Assessment Strategy has been designed to support and enhance the development of both subject-based and employability skills, whilst ensuring that the modules Learning Outcomes are attained, as described below.</p> <p>There are two pieces of coursework, which will be in the form of practical assessments. The first assessment (CW1) will be a short multiple choice paper based on the basic practical techniques learned in semester 1. This assessment is likely to take place during the January exam period</p> <p>The second assessment (CW2) will assess your understanding of basic practical techniques/ data analysis learned in semester 2.</p> <p>The controlled component is a written exam. The exam will be 3 hours duration which is consistent with the Department's assessment strategy for Level 2 modules. This assessment will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics through a series of MCQs and short answer questions, This assessment will test a range of the learning outcomes and will provide a valuable learning experience through recalling and demonstrating knowledge which will be of benefit when progressing to final year modules.</p> <p>The usual rules apply; you must get at least 40% for the overall module, but either the component A or component B mark can fall as low as 35% as long as the other is high enough that the overall module average is 40%.</p> <p>The assessment will cover the broad curriculum via one examination at the end of semester 2</p> <p>Exams are 3 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: 50%	B: 50%
First Sit		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. EX Examination (3hrs)	100%	
Component B Description of each element	Element weighting (as % of component)	

1. CW 1- MCQs (Assessment period 1)	35%
2.(CW 2- Scientific report (Assessment period 2)	65%

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. EX Examination (3 hrs)	100%
Component B Description of each element	Element weighting (as % of component)
1. CW 1- Short answer questions	35%
2. CW 2- Scientific report	65%

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.