



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Haematology				
Module Code	USSKBK-30-3	Level	3	Version	1
Owning Faculty	Health and Applied Science	Field	BBAS		
Contributes towards	BSc Biomedical Science BSc Biomedical Science (Clinical)				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	Studies in the Biology of Disease (USSKAT-30-2)	Co- requisites	None		
Excluded Combinations	None	Module Entry requirements	N/A		
Valid From	September 2016	Valid to	September 2022		

CAP Approval Date	28/03/2014
--------------------------	------------

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"> • Discuss the processes involved in the maintenance of normal blood composition and function [A1, B1, B2] • Discuss critically the biological bases of selected haematological disease states [A1, B1, B2] • Interpret bold parameters that characterise selected disease states [A1, B1, B2] • Outline the nature and significance of investigative haematology and its role in the diagnostic process [A1, B1, B2] • Describe the nature and significance of human blood groups of major clinical importance and discuss barriers they represent for transfusion [A1, B1, B2] • Discuss the strategies which underpin optimal utilisation of donated blood [A1, B1, B2] • Select appropriate methods for the demonstration of different antigen-antibody reactions and investigate the chemical and physical variables which govern their sensitivity [A1, B1, B2] • Discuss the biological bases of the different immunohaemolytic disease states [A1, B1, B2] • Utilise electronic information sources effectively as learning aids in haematology and transfusion and be able to critically appraise relevant scientific literature [A1, B1, B2]
Syllabus Outline	Physical and chemical requirements for optimal haematopoiesis throughout life

	<p>Content of the blood and bone marrow. Reference values. Ontogeny and sites of haematopoiesis. Regulation of haematopoiesis. Nutritional requirements.</p> <p>The anaemias Classification systems. Megaloblastic anaemias. Iron deficiency and related anaemias. Normal erythrocyte structure and function. Red cell survival disorders. Haemoglobinopathies and the thalassaemia syndromes. Red cell enzymopathies.</p> <p>Haematological malignancy Aetiology and the multi-hit hypothesis. Classification. Principles of investigation and diagnostic criteria. Pathophysiology. Theoretical basis of cytotoxic chemotherapy and stem cell transplantation.</p> <p>Haemostasis Structure and contribution to haemostatic function of blood vessels, platelets, coagulation proteins and fibrinolytic proteins. Functional inter-relationships between the vascular, platelet, coagulation and fibrinolytic systems. Naturally occurring inhibitors of coagulation and fibrinolysis. Haemorrhagic conditions. The hypercoagulable state.</p> <p>Blood donation Principles of the selection, collection, separation, storage and transportation of donated blood components for transfusion. The bacteriology, virology and parasitology of diseases which can be transmitted by transfusion.</p> <p>Blood groups The major blood polymorphisms e.g. ABO, Rh, and selected other blood group systems. Blood group structure, function and relevance to transfusion.</p> <p>Compatibility of blood In vitro antibody-antigen reactions for the selection of compatible blood. Optimisation of detection techniques for in vitro antibody-antigen reactions.</p> <p>Immunohaematology Laboratory investigation of serological reactions to aid diagnosis of immunohaemolytic disease and immunological transfusion reactions. Strategies for the prophylaxis of immunohaemolytic disease.</p> <p>Transfusion therapy The appropriate use of blood components. Hypersensitivity responses to transfusion.</p>
Contact Hours	<p>The contact hours (72) are distributed as follows:</p> <p>48 hours of lectures 24 hours of tutorials/seminars</p> <p>This contact time will also be underpinned by provision of online material to be delivered in an asynchronous manner through the University's E-Learning Environment Blackboard, including for example additional recorded lectures, case studies to work through and online quizzes.</p>
Teaching and Learning Methods	<p>This module is a core specialist module within the BSc Biomedical Science programme and so aims to deliver specialist knowledge through taught lectures, together with inductive tutorials and seminars to enable application and problem-solving utilising this knowledge. Student learning will be further supported through the University's E-Learning Environment, Blackboard, with provision of materials and activities to guide independent study.</p> <p>Students are expected to spend 72 hours on scheduled learning and a further 228 hours on independent learning.</p> <p>Independent learning will take the following forms with an approximate indication of</p>

time required for each:

- Essential reading to support acquisition of knowledge and completion of problem-solving tasks, case studies and online quizzes related to lectures and tutorials – 120 hours
- Preparation and submission of assignment 1 – 24 hours
- Preparation and submission of assignment 2 – 24 hours
- Exam revision and preparation – 60 hours

Scheduled learning includes lectures, seminars and tutorials.

Independent learning includes hours engaged with essential reading, case study preparation, online activities, assignment preparation and completion etc.

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				
<i>Number of credits for this module</i>				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: One unseen written exam
Coursework: One written assignment/essay and one 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	60%
Coursework assessment percentage	40%
	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, the library catalogue and access to generic resources such as referencing tutorials. 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,

	<p>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><i>The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, CURRENT advice on readings will be available via other more frequently updated mechanisms.</i></p> <p>The module texts are:</p> <ul style="list-style-type: none"> • Hoffbrand, A. V. & Moss, P.A.H. (2011) <i>Essential Haematology</i>. 6th Ed. Chichester: Wiley-Blackwell. • Overfield, J., Dawson, M.M., and Hamer, D. (2008) <i>Transfusion Science</i>. 2nd Ed. Bloxham: Scion Publishing Limited. • Pallister, C. & Watson, M. (2011) <i>Haematology</i> 2nd Ed. Bloxham: Scion Publishing Limited <p>Indicative sources:</p> <p>All aspects of the syllabus are covered in general Haematology, Transfusion and Molecular Biology books such as:</p> <ul style="list-style-type: none"> • Appelbaum, F.R., Forman, S.J., Negrin, R.S. and Blume, K.G. (2009) <i>Thomas' Hematopoietic Cell Transplantation</i>. 4th Ed. Chichester: Wiley-Blackwell. • Daniels, G. (2013) <i>Human Blood Groups</i>. 3rd Ed. Chichester: Wiley-Blackwell • Hoffbrand, V.A., Catovsky, D., Tuddenham, E.G.D. and Green, A.R. (2010) <i>Postgraduate Haematology</i>. 6th Ed. Chichester: Wiley-Blackwell • Hughes-Jones, N.C., Wickramasinghe, S.N. and Hatton, C.S.R. (2008) <i>Haematology (Lecture Notes)</i> 8th Ed. Chichester: Wiley-Blackwell • Klein, H.G. and Anstee, D.J. (2014) <i>Mollison's Blood Transfusion in Clinical Medicine</i> 12th Ed. Chichester: Wiley-Blackwell. • Knight, R. (2012) <i>Transfusion and Transplantation Science: Fundamentals of Biomedical Science</i>. Oxford: Oxford University Press. • McCullough, J. (2011) <i>Transfusion Medicine</i> 3rd Ed. Chichester: Wiley-Blackwell • Okpala, I. (2004) <i>Practical Management of Haemoglobinopathies</i>. Chichester: Wiley-Blackwell. • Pallister, C.J. (1994) <i>Blood: Physiology and Pathophysiology</i>. Bloxham: Scion Publishing. • Provan, D. and Gribben, J. (2010) <i>Molecular Hematology</i> 3rd Ed. Chichester: Wiley-Blackwell <p>In addition, students will be actively encouraged to source recent articles from a number of scientific journals, including (but not limited to):</p> <ul style="list-style-type: none"> • Blood • Bone Marrow Transplantation • British Journal of Haematology • Critical Reviews in Oncology/Haematology • Current Opinion in Haematology • Current Topics in Haematology

	<ul style="list-style-type: none"> • Experimental Hematology • Haematologica • Journal of Thrombosis and Haemostasis • Leukaemia • Stem Cells • Transfusion • Transfusion and Apheresis Research • Transfusion Medicine Reviews • Transplantation Proceedings • Vox Sanguinis
--	---

Part 3: Assessment

Assessment Strategy	<p>The Assessment Strategy has been designed to support and enhance the development of subject-based knowledge and skills, whilst ensuring that the Learning Outcomes are achieved.</p> <p>The coursework consists of two elements to provide variation in methods used and ensure broad coverage of key areas within the syllabus. The first element is an essay, providing students with an opportunity to develop and gain summative feedback on essay writing skills (which are used less frequently as assessment vehicles at level 1 and 2) early in the year prior to the essay-based exam questions. The second coursework element is a poster presentation, which will enable students to research and critically analyse a current area of literature, as well as develop skills in communicating science.</p> <p>The controlled assessment is one 3 hour examination comprising essay based questions and is an effective method of assessing a student's ability to utilise and apply knowledge gained at this level. Questions will allow an element of choice of subjects covered, with the paper as a whole encompassing a representative cross-section of the syllabus and Learning Outcomes, which in combination with the assignments set will allow assessment of many of the main aspects of the module.</p> <p>Formative feedback is available throughout the module using Q+A sessions in lectures, group discussions, particularly in tutorials/seminars, together with use of 'Turning Point Technologies' throughout taught sessions to enable students to gain an indication of their progress anonymously.</p> <p>Summative feedback will be provided after submission of the first assignment which will enable students to utilise general development areas within their subsequent assignment and exam.</p> <p>Students are also provided with formative feed-forward for their assignments through briefing and Q+A sessions prior to submission deadlines. Similarly, how to approach exam questions will be discussed throughout the course, combined with specific exam revision and preparation sessions prior to the exam.</p>
---------------------	---

Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	A: 60%	B: 40%
First Sit		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	

1. Examination (3hrs)	100%
Component B Description of each element	Element weighting (as % of component)
1. Essay	50%
2. Poster presentation	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 (3hrs)	100%
Component B Description of each element	Element weighting (as % of component)
1. Extended Essay	100%
2.	
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.	