



ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Haematology				
Module Code	USSJYV-30-M	Level	M	Version	1
UWE Credit Rating	30	ECTS Credit Rating	15	WBL module?	No
Owning Faculty	Health and Applied Sciences	Field	Applied Sciences		
Department	Biological Biomedical and Analytical Sciences	Module Type	Standard		
Contributes towards	MSc Biomedical Science				
Pre-requisites	Study of haematology in undergraduate degree	Co- requisites	None		
Excluded Combinations	None	Module Entry requirements	Study of haematology at undergraduate degree level		
First CAP Approval Date	2 February 2016	Valid from	September 2016		
Revision CAP Approval Date		Revised with effect from			

Review Date	~ 5 years post approval for PSRB requirements
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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"> • 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] <p>Utilise electronic information sources effectively as learning aids in haematology and transfusion and be able to critically appraise relevant scientific literature [A1, B1, B2]</p>

Syllabus Outline	<p>Physical and chemical requirements for optimal haematopoiesis throughout life 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>Formal lectures – 2 hours per week during teaching weeks (two semesters) M level tutorials – 1 hour per week for 20 weeks</p>
Teaching and Learning Methods	<p>Teaching will comprise a mix of formal lecture, group discussion, tutorials and data interpretation exercises. For each hour of scheduled study students are advised to undertake 9 hours of independent study - as this is an M level module the amount of guidance on activities will be reduced as the year progresses so that students develop independent learning skills, and gain the chance to study topics from within the module in alignment with their areas of interest. The interactive nature of the M level tutorials will mean that students will need to spend time each week preparing for the next session. The students will be advised to allow at least 50 hours of the independent study time working on the coursework for the module (which contributes 50% of the module mark).</p> <p>Students on the module will also be required to attend a conference week at an appropriate time in the year (dependent on changes to the academic calendar). During this week a range of visiting lecturers will be brought in to give keynote lectures (for example based on their clinical practice) or research focused lectures that map to the syllabus content. The conference week will also give students an experience of what it</p>

	is like to attend a scientific conference, with an intensive schedule of talks across the week to be attended. Engagement with the conference week will be assessed as part of USSJYR-15-M (Advanced Topics in Biomedical Science) but the lecture content of conference week will augment this module as well.
Key Information Sets Information	Not applicable for level M programmes/modules
Reading Strategy	<p>At Masters level students are expected to demonstrate the ability to find information, assess its relevance and utilise it in their studies in an independent manner; however the programme team recognise that students entering the programme may be at different levels of the development of the skills required to undertake this successfully. Therefore module leaders will provide you with a starting point in terms of core readings and the lecture material will also give you a strong starting point. However it is in the area of further reading that you need to show the independence of skills and of knowledge development, so you will need to find the further readings yourself. However, the skills required to do this are covered during the early stages of the course, during induction week you will have a library induction session, and in the Research and Diagnostic Methodologies module (USSJYT-30-M) that you take during the first semester we will cover how to undertake a literature search and how to assess and use the material you find appropriately. The programme tutorials will provide opportunities for you to further develop these skills and to ask any questions that you have. Further support and guidance is available through the library which runs workshops that you can sign up to, and also has advice in its website.</p> <p>Module leaders will give you a clear indication of any essential reading, and point you towards the appropriate textbooks and journals for their discipline. This will usually be in the form of a reading list in the module guide; the indicative list on this module specification is as it states indicative as the relevant available books and journals can change regularly – and the module specification is a document written only once when a module is modified and can last for many years. So it is important that you refer to the reading list for your specific year group as the definitive document.</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. .</p>
Indicative Reading List	<p>Selected Texts – Current Editions of:</p> <p>The module texts are Hoffbrand, A. V., Pettit, J. E. and Moss, P.A.H. (2011) <i>Essential Haematology</i>. 6th ed. Oxford: Wiley Blackwell.</p> <p>Knight, R. (2013) <i>Transfusion and Transplantation Science: Fundamentals of Biomedical Science</i>. Oxford: Oxford University Press.</p> <p>Pallister, C.J. and Watson, M.S. (2011) <i>Haematology</i>. 2nd ed. (Banbury: Scion Publishing.</p> <p>In addition aspects of the syllabus are covered in general Haematology and Molecular Biology books such as but not limited to:</p> <p>Overfield, J., Dawson, M.M. and Hamer, D. (2008) <i>Transfusion Science</i>. Bloxham: Scion Publishing Ltd.</p>

Provan, D. and Gribben, J. (2010) *Molecular Hematology*. 3rd ed. Online version: Wiley Blackwell

Hughes-Jones, N.C., Wickramasinghe, S.N and Hatton, C. (2004) *Lecture Notes on Haematology*. 7th ed. Malden (Mass, USA): Blackwell Publishing.

Moore, G., Knight G. and Blann, A. (2011) *Haematology* Oxford: Oxford University Press

Okpala, I.E. (2004) *Practical Management of Haemaglobinopathies*. Malden: Blackwell Publishing

Daniels, G. (1995) *Human Blood Groups*. Oxford: Blackwell Scientific

Klein, H.G., Anstee, D.J. and Mollison, P.L. (2005) *Mollison's Blood Transfusion in Clinical Medicine*. Online: Wiley-Blackwell

In addition, students will be actively encouraged to source recent articles from a number of scientific journals, including (but not limited to):

- Blood
- Bone Marrow Transplantation
- British Journal of Haematology
- Critical Reviews in Oncology/Haematology
- Current Opinion in Haematology
- Current Topics in Haematology
- 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 MSc BMS Programme has a programme level assessment strategy (see Programme Specification appendix 1), and all modules have their assessments designed to relate to that document. For parity across all routes the specialist subject modules on the MSc BMS programme have a 50:50 weighting of course work to final exam – this module is one of the specialist modules. Therefore the coursework has been designed in line with the programme assessment strategy.</p> <p>Specialist module coursework is designed to test the ability of students to express their chosen specialist discipline in both written form and in oral form.</p> <p>The coursework essay is similar in style to a review article in a journal, and the presentation is designed to replicate those given at conferences. Both are highly relevant assessments for higher level science graduates to have undertaken, preparing them for future academic style writing and presentation in their professional lives.</p> <p>The assessments are marked to the BBAS standard PG marking criteria, and students are fully briefed on the assessment both in writing and through a tutorial session. Students also develop several transferable skills during this assessment including negotiation (they are allowed to pick their own title and refine it), critiquing of published literature, scientific writing etiquette, and editing documents to a high editorial standard.</p>
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	The exam enables students to demonstrate a breadth of knowledge that it would be reasonable for future employers to see in a Masters graduate in relation to their chosen specialism.
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Identify final assessment component and element	A	
% 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. Examination (3 hours)	100	
Component B Description of each element	Element weighting (as % of component)	
1. Essay (3000 words)	50	
2. Poster presentation (20 minutes including defence)	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. Extended Essay (5000 words)	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.		