

Liverpool John Moores University

Title: HAEMATOLOGY AND BLOOD TRANSFUSION SCIENCE (V.2)
Status: Definitive
Code: **5003BMBMOL** (101468)
Version Start Date: 01-08-2011

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
Gordon Lowe	Y

Academic Level: FHEQ5
Credit Value: 12.00
Total Delivered Hours: 28.50
Total Learning Hours: 120
Private Study: 91

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	22.000
Practical	3.000
Workshop	2.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60.0	1.50
Practice	AS2	Assessed practical	40.0	

Aims

To provide a good foundation for haematology and transfusion science so that it can be developed further at Level 3.

Learning Outcomes

After completing the module the student should be able to:

- 1 outline human haemopoiesis.
- 2 demonstrate knowledge of the role of nutritional factors in red cell development.
- 3 review red cell physiology.
- 4 explain the biochemical basis for human blood group systems.
- 5 describe the role of platelets and coagulation factors in haemostasis.
- 6 reinforce the lecture material from experimental outcomes in the practical sessions.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5	6
CW	3	4	5			

Outline Syllabus

Haemopoiesis, haemostasis and metabolic processes. The development of blood cells from a pluripotent stem cell. Description of red cell development including the role of cytokines, microenvironment and erythropoietin on the process. The roles of iron and vitamin B12 and folate on red cell development. Red cell structure and biochemistry-generation of 2,3-BPG haemoglobin synthesis and catabolism, cell membrane structure. The structure and function of haemoglobin. Oxygen dissociation and the Bohr effect. Platelet function and their relationship with the coagulation cascade to form a haemostatic plug to prevent bleeding. The general blood groups such as AB and O will be described along with the Rhesus system and other important groups such as the Lewis blood group. A selection from the following will also be described: compatibility testing, HDNB, blood products, microbiology of blood and transfusion reactions.

Learning Activities

Lecture Material. This will introduce the basic concepts of haematology, including red cell development, properties of red cells, haemostasis, and transfusion science. White cells will be reviewed in other courses e.g. B and T-lymphocytes in immunology Neutrophil function in Laboratory Investigation of Disease A. Some sessions will include exercises to enhance learning, these may include problem solving or informal multi-choice questions.

Workshops. These will address some of the techniques employed in a hospital pathology lab to diagnose disease. One workshop will concentrate on the principle of automated cell counting. The session will mainly focus on the 'coulter principle' and how modern day instrumentation operates and generated the various red cell parameters. The other workshops will be case studies concentrating upon coagulation defects and blood grouping. In these sessions the basic laboratory techniques will be introduced and applied to a specific problem.

Practicals. The student will be supplied with a patient blood sample, and a Rowmanovsky stained blood smear, and clinical information concerning the patient.

This practical will reinforce the lectures on nutrient requirements for red cell development. The final practical will determine the secretor status and blood group of the student. This will be strongly relevant to the transfusion element of the module.

References

Course Material	Book
Author	Pallister, C.J.
Publishing Year	2001
Title	Biomedical Sciences Explained: Haematology.
Subtitle	
Edition	
Publisher	Arnold Publishing
ISBN	0-7506-2457-4.

Course Material	Book
Author	Hughes, N.C., Wickramasinghe, S.N.
Publishing Year	1997
Title	Lecture notes on Haematology.
Subtitle	
Edition	6th ed.
Publisher	Blackwell Science.
ISBN	0-632-04039-4.

Course Material	Book
Author	Overfield, J., Dawson, M. and Hamer, D.
Publishing Year	2001
Title	Transfusion Science.
Subtitle	
Edition	
Publisher	Arnold
ISBN	0-7506-34154

Course Material	Book
Author	Internet Sites: http://www.hematology.org
Publishing Year	0
Title	
Subtitle	
Edition	
Publisher	
ISBN	

Course Material	Book
Author	ABC Haematology Series http://www.bmj.com

Publishing Year	0
Title	
Subtitle	
Edition	
Publisher	
ISBN	

Notes

Will provide sufficient background to enable further studies at level 3