Module Definition Form (MDF)

Module code: MOD010856	**Version:** 1 **Date Amended:** 28/Feb/2025

1. Module Title
Haematology, Immunology and Transfusion Science

2a. Module Leader
Sarah James

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Blood Sciences is one of the key disciplines in Biomedical Science and includes Haematology, Haemostasis, Biochemistry, Clinical Immunology and Blood Transfusion. Building on your knowledge from previous modules, in particular Human Anatomy and Physiology, Diagnostic Techniques in Pathology, Principle of Pathology, Physiology of Organ Systems, and Laboratory Techniques in DNA Manipulation, you'll learn about the different cells of the blood and the immune system and associated pathologies and disorders. Examples include haematological conditions such as anaemia, leukaemia and haemophilia and immunological conditions, such as hypersensitivities and autoimmunity. The module delivery includes lectures and case study sessions. Analysis and discussion of clinically relevant case studies will offer you an opportunity to challenge and develop your problem solving and critical thinking skills by applying information from lectures and your wider reading, to evaluate and diagnose patients' medical conditions and consider appropriate treatment approaches. You'll critically review current clinical diagnostic techniques and relevant ethics. The skills that you'll gain include independent learning, problem solving, critical analysis, developing yourself through self-management of learning activities and critical thinking. These are essential skills for anyone interested in pursuing a career within biomedical sciences, either in the hospital or research sectors

6b. Outline Content

- Haematopoiesis
- Basic and advanced diagnostic techniques used in Blood Sciences
- Blood films
- Diagnostic techniques used in clinical immunology
- The cells and organs of the immune system
- The innate immune system and inflammation
- Thalassaemia and Haemoglobinopathy
- Ethics
- Anaemia
- Haemostasis and its pathologies
- White blood cell (T and B cell) maturation and activation in defence against disease
- Haematological malignancies (with consideration of therapeutic drug monitoring)
- Antibody structure and function and generation of antibody diversity
- Antigens and antigen-antibody interactions
- Antibody-based and cell-mediated adaptive mechanisms of immunity to pathogens.
- Blood grouping and screening
- Haemolytic transfusion reactions, including haemolytic disease of the newborn
- Transplantation immunology; the basis of the body's recognition of self and self-tolerance; tissue typing
- Mechanisms of hypersensitivity disease (including allergies) and their treatment
- Blood component donation and testing selection of blood components for transfusion and possible adverse effects
- The basis of diagnosis and treatments for autoimmune diseases
- Mechanisms of loss of immune defence in immunodeficiency diseases and their treatment.
- Vaccine immunology; immunological techniques and their applications/approaches to vaccine design
- Tumour immunology and current immunological treatments for cancer
- Commercial and medical uses of monoclonal antibodies (mAbs) for treatment.
- Weekly clinically relevant case studies, including analysis of clinical data (e.g., biochemistry, full blood count), patient history (e.g., existing underlying diseases and prescriptions), differential diagnosis, and treatment strategies.

IBMS criteria met within this module:

6c. Key Texts/Literature
The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources
Lecture theatre, active learning rooms

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Demonstrate through analysis of clinical case studies a systematic understanding and critical knowledge of immunological and haematological mechanisms
2	Knowledge and Understanding	Critically evaluate the pathophysiology, molecular genetics and laboratory diagnosis of haematological and immunological disorders.
3	Intellectual, practical, affective and transferrable skills	Apply the principles of quality control in diagnostic testing in a clinical setting.
4	Intellectual, practical, affective and transferrable skills	Formulate and present a differential diagnosis considering immunological and haematological mechanisms in disease.
5	Intellectual, practical, affective and transferrable skills	Apply reference ranges in the context of disease and clinical standards.

8a. Module Occurrence to which this MDF Refers

Year	Occurrence	Period	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	44	1-3	11 x 4 hours lectures/active learning
Other teacher managed learning	23	1-5	22 x 1 hour case studies (2 per week) 1 x 1 hour Multi-disciplinary Team discussion
Student managed learning	233	1-5	Background reading, online activities (e.g., formative MCQs), clinical data analysis (including additional self-guided practice case studies, made available on Canvas /online interactive sessions), preparation for lecture and case study discussions, revision and preparation for assessments.
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1,4,5	50 (%)	Fine Grade	40 (%)
Coursework (1500 word equivalent) (40 % qualifying mark as stipulated by the IBMS)					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Examination Cambridge	2,3	50 (%)	Fine Grade	40 (%)
Exam 1.5 hours (40 % qualifying mark as stipulated by the IBMS)					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]