

Module Details	
Module Title	Immunology, Haematology and Transfusion Science
Module Code	BIS5012-B
Academic Year	2024/5
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 5

Contact Hours	
Type	Hours
Tutorials	Immunology is a branch of medicine that studies the immune system which protects us from infection through various lines of defence. Haematology and Transfusion Science is the study and analysis of blood and blood forming tissues. Both are key disciplines required routinely in laboratory investigations for diagnosis of health and disease, This module supports the programme by developing learners? knowledge and critical understanding of the well-established principles of Biomedical Science (PLO6). It also enables learners to evaluate and discuss the laboratory specialities of clinical immunology, haematology and transfusion science (PLO7). In this module learners will develop an appreciation of the fundamentals of the immune system and immune responses. Learners will be introduced to some basic immunological techniques commonly used throughout the Biomedical Sciences. Learners will develop an appreciation of the study and investigation of the different elements that constitute blood in normal and diseased states (haematology) and the identification of blood group antigens and antibodies which ensures a safe supply of blood and blood components (transfusion science). This module will support those students seeking knowledge to their employment in medicine and medical research. It emphasises the importance of the blood and immune system interactions in health and disease.
Lectures	30
Laboratories	7
Directed Study	157
Tutorials	6

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

## Module Aims

Immunology is a branch of medicine that studies the immune system which protects us from infection through various lines of defence. Haematology and Transfusion Science is the study and analysis of blood and blood forming tissues. Both are key disciplines required routinely in laboratory investigations for diagnosis of health and disease,

This module supports the programme by developing learners' knowledge and critical understanding of the well-established principles of Biomedical Science (PLO6). It also enables learners to evaluate and discuss the laboratory specialities of clinical immunology, haematology and transfusion science (PLO7).

In this module learners will develop an appreciation of the fundamentals of the immune system and immune responses. Learners will be introduced to some basic immunological techniques commonly used throughout the Biomedical Sciences. Learners will develop an appreciation of the study and investigation of the different elements that constitute blood in normal and diseased states (haematology) and the identification of blood group antigens and antibodies which ensures a safe supply of blood and blood components (transfusion science).

This module will support those students seeking knowledge to their employment in medicine and medical research. It emphasises the importance of the blood and immune system interactions in health and disease.

## Outline Syllabus

### Academic Content:

Introduction to immunology.

Introduction to immunopathology and the role of the immune system in cancer prevention.

Immunology: acute and chronic inflammation, structure, function and mechanisms action of the components of the immune system; innate and acquired immunity.

The principles of the function and measurement of effectors of immune response.

The causes and consequences of diseases associated with abnormal immune function, neoplastic diseases and transplantation reactions.

Introduction to haematology and transfusion science.

The structure, function and production of blood cells.

The regulation of normal haemostasis.

The nature and diagnosis of anaemias, haematological malignancies, haemorrhagic and thrombotic diseases.

Principles and practice of haematological techniques used for screening, diagnosis, treatment and monitoring of disease.

Immune mediated destruction of blood cells.

The preparation, storage and use of blood components.

The selection of appropriate blood components for transfusion and possible adverse effects.

### Employability and Enterprise Skills

Biomedical knowledge and critical understanding

Laboratory skills

Communication skills

Data analysis

Critical thinking

Application of knowledge

Learning Outcomes	
Outcome Number	Description
01	Describe the structure and function of the cells, tissues and molecular effectors of the immune system and explain the nature of immune responses (HCPC standards 14, 13).
02	Describe the structure, function and production of blood cells and their role in health and disease (HCPC standards 14, 13).
03	Explain the genetics of blood groups and the importance of blood group antigens and antibodies in transfusion practice (HCPC standards 14, 13).
04	Present scientific information appropriately and demonstrate understanding of the data (HCPC standards 1, 3, 8, 14, 10, 15).

Learning, Teaching and Assessment Strategy
<p>The LTA strategy encompasses education for employability and equal opportunities for learners.</p> <p>Information outlining the knowledge and understanding required for this module is delivered in lectures that are characterised by active learning concepts. Additional formative material will be delivered via the virtual learning environment (VLE) to promote autonomous learning. This information is reinforced by practical and workshop sessions. In the workshops learners will work in groups to research information, interpret data, solve problems and develop their understanding which will then be assessed.</p> <p>Practical classes will provide the opportunity to develop experimental antibody techniques and data interpretation and analysis and understanding of blood disorders. This mix of methodologies will be accessible to different learning styles and will develop critical thinking and interpretative skills through case studies. During directed study hours, students are expected to undertake reading to consolidate and expand on the content of formal taught sessions; research and prepare for assessments; revise material from formal taught sessions; and undertake specific elements of reading as directed. This will be facilitated and supported via the use of the VLE, which will provide coursework advice and feedback, and revision support.</p> <p><b>Assessment Strategy:</b> Formative MCQ tests will be made available via the VLE at the completion of each teaching block as well as at the end of each semester. Immediate feedback will be given for learners to self-assess their understanding and progress.</p> <p>Formative case study/ data interpretation material will be provided via the VLE and feedback will be provided as a group discussion.</p> <p>Summative assessment will take the form of a computer-based test, a case study and a closed-book exam. Reassessment of failed elements will be as per the initial method of assessment.</p> <p>It is a requirement of the IBMS that ALL assessments in this module MUST be passed with a minimum mark of 40%.</p>

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Online MCQ Examination	Haematology MCQ test (LO3) MUST PASS AT 40%	25%
Summative	Coursework - Written	Haematology case study (LO2, LO4) MUST PASS AT 40%	25%
Summative	Examination - Closed Book	Immunology exam comprising MCQ & short answer questions (LO 1) MUST PASS AT 40%	50%

Reading List
To access the reading list for this module, please visit <a href="https://bradford.rl.talis.com/index.html">https://bradford.rl.talis.com/index.html</a>

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*

---

© University of Bradford 2024

<https://bradford.ac.uk>