Module Definition Form (MDF)

Module code: MOD003123	**Version:** 9 **Date Amended:** 06/Dec/2023

1. Module Title
Diagnostic Techniques in Pathology (BMS)

2a. Module Leader
Shiny Ezra

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	Biomedical Science, Bioscience, Life Sciences framework		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

A biomedical scientist is trained to use and develop diagnostic tools and treatments for diseases. You will be introduced to the biomedical science diagnostic disciplines of medical microbiology, clinical chemistry, cellular pathology, haematology and transfusion science, clinical immunology and clinical genetics. You will develop an understanding and appreciation of the day-to-day workings of an NHS pathology department as well as the scientific background of the diagnostic procedures you would perform as a Health and Care Professions Council (HCPC)-registered Biomedical Scientist.

You will be able to describe and discuss basic sample handling, storage and disease screening within the various pathology laboratories. You will also gain a firm grounding in the legal requirements for safe working practice, ethical issues and quality assurance procedures; you will study legislation governing these aspects, which will enable you to identify potential risks and hazards within pathology laboratories. You will also learn the fundamental principles used in obtaining results and how results are communicated to service users.

Your teaching is delivered by qualified academic and HCPC-registered Biomedical Scientists. A case study approach is used to allow you to learn real-life and up-to-date diagnostic practices. You will develop the communication skills required to work as part of a multi-disciplinary healthcare team, while discipline-specific laboratory practicals will allow you to demonstrate your team-working and project management skills. You will also develop business and commercial awareness through knowledge of pathology department management and planning.

This module prepares you to undertake the IBMS registration portfolio towards employment as a HCPC-registered Biomedical Scientist. However, you will also be equipped with knowledge and skills required to work in areas such as medicine, clinical and medical science, healthcare policy, and management, among others

6b. Outline Content

- Diagnostic Pathology and Professional Practice
- Cellular Pathology (Histology and Cytology)
    - gross structure and ultrastructure of normal cells and tissues and the structural changes which may occur during disease
    - preparation of tissues and cells (fixation, embedding, microtomy) for microscopic examination
    - principles and applications of visualisation and imaging techniques (including microscopy) to aid diagnosis and treatment
- Clinical Biochemistry
    - range and methods used for collection of clinical samples for biochemical analysis
    - principles and application of biochemical investigations used in screening, diagnosis, treatment and monitoring of disease
    - therapeutic drug monitoring

- investigation of substance

- Clinical Immunology
  - principles of function and measurement of effectors of the immune response
  - immunological techniques used in clinical and research laboratories

- Haematology
  - structure, function and production of blood cells
  - the regulation of normal haemostasis
  - nature, diagnosis and laboratory techniques for the investigation of anaemias
  - nature, diagnosis and laboratory techniques for the investigation of haematological malignancy

- Transfusion Science
  - genetics, inheritance, structure, function and role of red cell antigens
  - immune-mediated destruction of blood cells
  - preparation, storage and use of blood components
  - selection of blood components for transfusion and possible adverse effects

- Medical Microbiology
  - laboratory investigation of a range of infectious diseases including isolation and identification of microorganisms

- Quality Management
- Point of Care Testing
- Laboratory Automation
- Health and Safety (including ethics)

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

6d. Specialist Learning Resources
Access to laboratories and teaching by academic / professional staff in the specialist areas.

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	Identify the roles of disciplines within pathology departments in terms of screening, diagnosis and monitoring.
2	Knowledge and Understanding	Examine the steps taken to ensure quality, reproducibility and validity of results produced within a pathology department.
3	Intellectual, practical, affective and transferrable skills	Identify risks and hazards within the laboratory in relation to legal and ethical frameworks, managements structures and Professional Body Regulation
4	Intellectual, practical, affective and transferrable skills	Collate, analyse and present data of the type produced in pathology laboratories for diagnosis and monitoring of patients

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		Face to Face

8b. Learning Activities for the above Module Occurrence

Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	17	1-3	3 x 3 hours + 4 x 2 hours lectures/active learning
Other teacher managed learning	19	4	4 x 3 hrs + 4 x 1 hr practicals + 3 hrs revision
Student managed learning	114	1-4	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	150		

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	60 (%)	Fine Grade	40 (%)
Coursework (2000 words) (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	1-4	40 (%)	Fine Grade	40 (%)
Exam (1000 words equivalent) (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]