Module Specification

Applied Transplantation Science

Version: 2025-26, v2.0, Approved

Contents

Part 1: Information

Module title: Applied Transplantation Science

Module code: USSJPJ-30-M

Level: Level 7

For implementation from: 2025-26

UWE credit rating: 30

ECTS credit rating: 15

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: NHS Blood and Transplant

Field: Applied Sciences

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module focuses on stem-cell, tissue and organ transplantation. Understanding and application of clinical transplantation practice and process is underpinned by teaching in histocompatibility and immunogenetics.

Features: This module is available as CPD.

Educational aims: This module aims to provide students with an in-depth knowledge of the theory and practice of stem cell and tissue transplantation. On

completion of the module students will have a sound understanding of histocompatibility and immunogenetics and clinical laboratory practice and process relating to transplantation science.

Outline syllabus: An indicative syllabus typically includes:

The biology of transplantation:
An introduction to the Immunological basis for transplantation, immunogenetics and the major histocompatibility complex. Histocompatibility and immunogenetics in stem cell transplantation and organ transplantation. Physiology and pathophysiology of tissue, solid organ, and haematopoietic stem cell transplantation. Transfusion therapy in the setting of solid organ and stem cell transplantation, including reference to relevant guidelines.

Stem cell and tissue banking:
The processes involved in consent, retrieval, processing, sample coding, storage and issue of tissues and stem cells. Processing and quality assurance of tissues. Cord blood banking and transplantation. Stem cell registries. Processing, storage and issue of haematopoietic stem cell therapies and donor lymphocyte infusions. Relevant legislation and guidelines for stem cell and tissue banking.

Donor considerations for transplantation:
Processes involved in donation of tissues and stem cells. Donor selection for haematopoietic stem cell transplantation. Donor compatibility and organ allocation for transplantation.

Advanced cell therapies:
An introduction to advanced cell and gene therapies, tissue engineering and regenerative medicine. Production and quality assurance of DNA and protein-based therapeutics. Applied biomaterials. Technology transfer, translation and commercialisation in the advanced cell therapy setting.

Personalised medicine:

Incorporation of clinical bioinformatics, pharmacogenomics and genomics, and their roles in personalised medicine within transfusion and transplantation science.

Part 3: Teaching and learning methods

Teaching and learning methods: Teaching will be delivered in blocks, including data-based and laboratory-based practicals. Online lectures and webinars, online case studies (patient scenario-based), online forum and tutorials.
Teaching will focus on being practice-led, embedding the application of transplantation theory, together with current clinical management of stem cell, tissue and organ transplantation.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Critically evaluate the variety of clinical needs for stem cell, organ and tissue transplantation and the processes involved in the transplantation of donated stem cells, organs and tissues.

MO2 Develop, refer to and apply a sound knowledge of current professional practice, research, legislation and clinical guidelines within transplantation science and medicine.

MO3 Correctly interpret results from patient serological and/or genotyping testing, evaluating options for pre-transplant work up, including assessment of donor compatibility, and discussing patient management.

MO4 Critically discuss the methods utilised for post-transplant monitoring of recovery and engraftment and the different immunological/non-immunological factors of graft rejection and graft versus host disease.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ussjpj-30-m.html

Part 4: Assessment

Assessment strategy: Assessment 1: Portfolio (2500 words)
Laboratory case studies. The portfolio will evidence interpretation of data obtained in laboratory practical classes and understanding of practical application of theoretical concepts, which are critical skills for transfusion specialists. Students will be supported in this assessment by in-session guidance from the teaching team and formative feedback on work completed in the initial practical session.

Assessment 2: Case Study (2000 words)
An extended case study.
The extended case study will assess the student's knowledge on the breadth of the syllabus, and evidence their ability to critically analyse and apply current research literature and clinical guidelines. This assessment is supported by a similar assessment previously completed within the Applied Transfusion Science module.

Assessment tasks:

Portfolio (First Sit)
Description: A portfolio of laboratory case studies (2500 words)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Case Study (First Sit)
Description: Extended case study (2000 words)
Weighting: 50 %
Final assessment: Yes

Group work: No
Learning outcomes tested: MO2, MO3, MO4

Portfolio (Resit)
Description: A portfolio of laboratory case studies (2500 words)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Case Study (Resit)
Description: Extended case study (2000 words)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Applied Transfusion and Transplantation Science [NHSBT] MSc 2025-26

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