

Liverpool John Moores University

Title: IMMUNOLOGY AND INFECTION
Status: Definitive
Code: **5103BMBMOL** (122381)
Version Start Date: 01-08-2021

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

Team	Leader
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Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 55

Total Learning Hours: 200 **Private Study:** 145

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	31
Practical	18
Workshop	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	ASS 1	Immunology online	50	
Practice	ASS 2	Assessed Microbiology practical & MCQs	50	

Aims

An introduction to the practical and theoretical concepts of medical microbiology and immunology.

To provide an understanding of the principles and practices involved in the laboratory diagnosis, prevention and treatment of infectious diseases in humans.

Learning Outcomes

After completing the module the student should be able to:

- 1 Apply knowledge of the range of microorganisms involved in human disease processes and the role of normal microbiota in health and disease
- 2 Apply knowledge in the identification of pathogenic organisms and in the treatment of infectious disease
- 3 Apply knowledge of cellular and humoral components of the immune response and selected immunological techniques
- 4 Review the principles of vaccination and the role of immunity in infectious diseases

Learning Outcomes of Assessments

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

immunology online	3	4
microbiology practical and mcq	1	2

Outline Syllabus

Microorganisms involved in human disease and mechanisms of pathogenicity. Public Health microbiology.

Clinical specimens used in the diagnosis and prevention of infectious disease together with an appreciation of normal microbiota contaminants.

The importance of microbial culture and microscopy procedures for the isolation and identification of suspected pathogens. Biochemical, serological and molecular methods used in identification of bacteria and viruses.

The modes of action of selected antimicrobial and anti-viral chemotherapeutic agents together with methods for determining their effectiveness and potential toxicity. The emergence of bacterial resistance and the value of drug resistance epidemiology.

Overview of Immunity: concepts of self and non-self, innate and adaptive immunity, acute and chronic inflammation, immune surveillance and tolerance, specificity and diversity of immune response. primary and secondary responses.

Immune cells and tissues.

Humoral immunity: antibody structure and function, primary and secondary responses, antigen-antibody interactions, complement, acute phase reactions, cytokines..

Cellular immunity: B and T cell receptors and the MHC; antigen presentation, clonal expansion, concepts of immunological memory
Selected immunological techniques,
Vaccination: active and passive immunisation
Role of immune system in defence processes (e.g. elimination of microorganisms, tumor surveillance, induction of inflammation) and as a therapeutic tool.
Introduction to immune dysfunction (e.g. hypersensitivity, autoimmunity, immunodeficiency) and immunity in pregnancy; case studies of selected diseases including diagnosis and therapy. The immune system and cancer.
Prophylaxis and immunotherapy

Learning Activities

Lectures, practicals, workshops and videos

Notes

Infection and immunity is designed so students may learn and fully appreciate the importance of microorganisms and the immune system in human health and disease. The content is practically orientated in order to develop important skills that may later be appreciated in the workplace environment. Students are encouraged to use reviews, papers and subject specific texts. There is a wide range of medical microbiology and immunology textbooks available. Students should have access to one of each.

No specific benchmarks are available for this module, but the learning outcomes at least meet, if not exceed, those stipulated in the relevant qualification descriptors for a higher education qualification at level 5 as defined by QAA, Sept 2015. The module has also been informed by the benchmark statement for Biomedical Science June 2015.

Intake is every September.

The criteria for admission to the module require that candidates meet the criteria for admission to the BSc Biomedical Science programme (32805).

The final award is Certificate of Professional Development in Immunology and Infection, 20 credits at Level 5.

The students have access to a module Blackboard site and the University's other range of electronic support such as access to the electronic library facilities. The module content is regularly updated on the Blackboard site including contemporary reading lists and links to journal articles. Students have access to the community site for Biomedical Science. All students have access to the module leader through phone contact and email. Module and CPD guides are also provided, which provide a range of information.

The programme is assessed and run in line with the Academic Framework
<http://www.ljmu.ac.uk/eaqs/121984.htm>

The module is accredited by The Institute for Biomedical Science (Sept 2016- Aug 2021). The module forms part of the BSc Biomedical Science programme (32805) which was reviewed in April 2016.

The methods for improving the quality and standards of learning are as follows:

- Annual monitoring Review;
- Liaison and feedback from the students;
- Reports from External Examiner;
- Programme team ensuring the module reflects the values of the current teaching and learning strategy;
- Module leader updating knowledge and skills to ensure these remain current and relevant.

The module is included in the programme specification for the BSc Biomedical Science programme (32805). The module is aligned with the same BSc Biomedical Science module for annual monitoring and external examining purposes.