



## MODULE SPECIFICATION

**Code:** USSJ4E-20-2

**Title:** Immunology and Disease

**Version:** 5

**Level:** 2

**UWE credit rating:** 20

**ECTS credit rating:** 10

**Module type:** Standard

**Owning Faculty:** Health and Life Sciences

**Department:** Applied Sciences

**Faculty Committee approval:** Quality and Standards Committee

**Date:** July 2011

**Approved for Delivery by:** N/A

**Valid from:** September 2011

**Discontinued from:**

**Pre-requisites:**

NONE

**Co-requisites:**

NONE

**Entry Requirements:**

N/A

**Excluded Combinations:**

NONE

**Learning Outcomes:**

The student will be able to:

- demonstrate basic knowledge of the cellular and molecular aspects of immunology;
- distinguish the role of humoral and cellular mechanisms in response to a wide spectrum of pathogens and antigens;
- recognise how antibodies and effector cells cause tissue damage in selected immune mediated diseases;
- demonstrate a basic understanding of the role of the immune system in blood transfusion and transplantation;
- associate particular symptoms with selected diseases of the immune system;
- evaluate important laboratory immunological techniques and their theoretical bases;
- manipulate, analyse, and interpret results derived from laboratory experiments.

**Syllabus Outline:**

Basic immunology

- The host and environment, antigens, foreignness, innate and acquired immunity
- Innate immune mechanisms, the problem of immune recognition, immunogens and antigens
- Recognition of self and tolerance
- B cells, epitopes, and antibodies
- Recognition of antigens by T cells, the major histocompatibility complex, and antigen presentation
- Cell-mediated immune reactions
- Basic structure of antibodies, antibody classes, isotypes, allotypes and idiotypes, monoclonal antibodies
- Biological functions of antibodies and complement
- Antigen–antibody interactions; detection and measurement of antibodies
- Different types of immune cells and the lymphatic system
- The humoral response, T–B cell interactions, cytokines and memory cells

Clinical immunology

- Antibody-mediated diseases: hypersensitivity reactions, red cell antigens and transfusion reactions, transplantation
- Humoral and cell responses to bacteria, viruses, fungi and parasites
- Prophylaxis and vaccines
- Rogue T lymphocytes in autoimmunity such as multiple sclerosis, rheumatoid arthritis and diabetes
- The immunology of cancer and immunodeficiency diseases, including AIDS
- Extended practical exercise using a wide range of techniques such as immunoelectrophoresis, precipitin reaction, immunoprecipitation techniques, and immunoblotting

### Teaching and Learning Methods:

This module will be delivered using lectures with some class group work to encourage self-learning. A great emphasis will be placed on practical sessions, which will include a range of basic immunological techniques and an extended exercise. Tutorial support will be given during incubation times in the practicals, and this may include revision prior to assessments. A combination of assessment techniques will be used, including MCQ, short-answer questions and a structured practical assessment, with feedback provided wherever possible to support student learning.

### Reading Strategy:

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.

### Indicative Reading List:

The module textbooks are the latest versions of the following:

KUBY: Immunology (5e). Goldsby RA, Kindt TJ, Osborne BA and Kuby J. WH Freeman Ltd.  
ROITT: Immunology (7e) Male D, Bronstoff J, Roth DB and Roitt I. Elsevier Ltd.

Other suggested reading:

Immunology: A short course (5e). Coico R, Sunshine G and Benjamini E. John Wiley & Sons, Inc.  
Basic and Clinical Immunology. Peakman M and Vergani D. Churchill Livingstone.  
Roitt's Essential Immunology (10e). Roitt IM and Delves PJ. Blackwell.  
Really Essential Medical Immunology (2e). Rabson A, Roitt IM and Delves PJ. Blackwell.  
Advanced Immunology (3e). Male D, Cooke A, Owen M, Trowsdale J and Champion B. Mosby.  
Lecture Notes: Immunology (5e). Todd I and Spickett G. Blackwell.

Websites

[www.whfreeman.com/kuby](http://www.whfreeman.com/kuby)  
[www.studentconsult.com](http://www.studentconsult.com)  
[www.roitt.com](http://www.roitt.com)

**Assessment:**

**Weighting between components A and B (standard modules only) A: 50% B: 50%**

**FIRST ATTEMPT**

**First Assessment Opportunity**

**Component A** (*controlled*)

Description of each element

EX1 Examination - 3 hours (Assessment Period 2)

**Element Wt (Ratio)**

(*within Component*)

*Final Assessment* 1

**Component B**

Description of each element

CA1 MCQ (Assessment Period 1)

CA2 Practical Assessment

**Element Wt (Ratio)**

(*within Component*)

1

1

**Second Assessment Opportunity (Resit) further attendance at taught classes is not required**

**Component A** (*controlled*)

Description of each element

EX2 Examination - 3 hours (Assessment Period 3)

**Element Wt (Ratio)**

(*within Component*)

*Final Assessment* 1

**Component B**

Description of each element

WA1 Short-Answer Questions

WA2 Written Essay

**Element Wt (Ratio)**

(*within Component*)

1

1

**EXCEPTIONAL SECOND ATTEMPT Attendance at taught classes is required.**

**Specification confirmed by** .....**Date** .....  
(Associate Dean/Programme Director)