

Module Specification

Applied Immunology

Version: 2025-26, v5.0, Approved

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Part 1: Information

Module title: Applied Immunology

Module code: USSKBN-30-3

Level: Level 6

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: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Immunology 2023-24, Studies in the Biology of Disease 2025-26

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Students will develop an understanding of the immune system, immunological responses and immune tolerance and the function of immunity in response to infections and non-infections disease.

Pre-requisites: Students must have passed Studies in the Biology of Disease (USSKAT-30-2) before starting this module.

Features: Not applicable

Page 2 of 7 18 June 2025 **Educational aims:** This module aims to provide the opportunity for students to apply critical thinking and evidence-based analysis specifically to the field of Applied Immunology.

Outline syllabus: Molecular immunology.

The structure of antibodies and the development of antibody specificity. Production of cytokines and mode of action. Cytokine classification. T helper subpopulations. Role of cytokines in T and B cell activation, humoral and cell mediated immunity.

Cellular immunology.

Cell-cell interactions. Receptors involved in cell activation pathways. Induction of tolerance; central and peripheral.

Clinical Immunology.

Autoimmune disease and allergy; induction and disease mechanisms. Transplantation rejection and immunosurveillance. Cancer immunology. Bacterial and Viral Immunology. Immunodeficiency.

Applied immunology.

Application of antibodies in immunodiagnostics and current technology. Antibody engineering and use of monoclonal and other synthesized antibodies. Applications of antibodies and cytokines in the treatment of disease.

Part 3: Teaching and learning methods

Teaching and learning methods: The module will be delivered using keynote lectures designed to highlight the important principles and concepts of each topic and to provide a framework for personal study. Where appropriate experimental evidence that underpins our current theoretical knowledge framework will be discussed, to allow the student to develop an appreciation of how scientific theory becomes established and evolves.

Lectures will be supported by tutorials and seminars, case studies and guided

Page 3 of 7 18 June 2025 reading. Interactive tutorials will be used to explore selected topics from the syllabus in more detail. Students will be encouraged to utilise their existing knowledge to develop their understanding of immunology in both lecture and tutorial sessions.

Student learning will be further supported through the University's E-learning environment, where a handbook, lecture slides / handouts, links to external websites, videos, quizzes, invitations to external seminars, journal articles and other resources will be available.

Guided reading will be provided to support or extend the lectures and will be used to direct the student to preparative and / or supplementary information sources. An essential reading list will also be provided.

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

MO1 Discuss the structure of the immune system and mechanisms of generating immune responses and immune tolerance.

MO2 Critically evaluate the function of the immune system in relation to diseases including autoimmunity, cancer, bacterial and viral infection, immunodeficiencies, and in transplantation.

MO3 Utilise electronic information sources effectively as learning aids and be able to critically and analytically appraise the relevant scientific literature.

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 <u>https://uwe.rl.talis.com/modules/usskbn-</u> <u>30-3.html</u>

Part 4: Assessment

Assessment strategy: Assessment 1: Presentation (10 minute presentation; 20 minute Q&A).

This assessment is designed to provide students with the opportunity to critically analyse a current area of literature. Specifically students will undertake a self selected literature search, read and digest some primary data, then present and explain the findings to other scientists in a series of seminars. Additionally, the seminars which are designed to align with the taught lecture topics and evenly cover the whole module content, will provide an additional and contemporary source of information, to build upon student understanding from the lectures.

Assessment 2: Examination (3 hours)

Three hour on-campus invigilated examination to align with the Institute of Biomedical Science requirements. Papers will be set with a range of questions to cover the breadth of module.

Students are supported to succeed in the examination through the completion of assessment 1 and are further supported to success by being permitted to bring a single A4 box file of information with them in to the assessment for use as a reference point. The content of the box is controlled to prevent students bringing pre-written essays in to copy.

Assessment tasks:

Presentation (First Sit) Description: Presentation (30 minutes)

Weighting: 50 % Final assessment: No Group work: No Learning outcomes tested: MO1, MO2, MO3

Examination (First Sit)

Description: Three Hour Examination

Weighting: 50 %

Final assessment: Yes

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Group work: No Learning outcomes tested: MO1, MO2, MO3

Presentation (Resit)

Description: Presentation (30 minutes) Weighting: 50 % Final assessment: No Group work: No Learning outcomes tested: MO1, MO2, MO3

Examination (Resit)

Description: Three Hour Examination Weighting: 50 % Final assessment: Yes Group work: No Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study: Applied Biomedical Science {Top-Up} [INTUNI] BSc (Hons) 2025-26 Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22 Biomedical Science [Frenchay] BSc (Hons) 2023-24 Biomedical Science [Frenchay] MSci 2023-24 Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2020-21 Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2021-22 Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22 Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21 Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21

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Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science {Foundation} [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] MSci 2022-23

Biomedical Science {Foundation} [Frenchay] MSci 2022-23