Module specification

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking on the following link: Module directory

Module code	SCI446
Module title	Introduction to Immunology and Microbiology
Level	4
Credit value	20
Faculty	FAST
Module Leader	Dr Neil Pickles
HECoS Code	100344
Cost Code	GAFS

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Biochemistry	Core
BSc (Hons) Biomedical Science	Core

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	40 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	40 hrs
Placement / work based learning	160 hrs
Guided independent study	0 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	14/10/2020
With effect from date	01/09/2021

For office use only	
Date and details of revision	21/04/21 Addition of BSc Biomedical Science programme 13/01/22 Module Leader update
Version number	3

Module aims

This module aims to:

1. Equip students with core knowledge in the fields of microbiology and immunology that will enable their successful progression to more advanced study of the topics at levels 5 and 6.

2. Enable students to carry out practical work in microbiology and pathology laboratories in a safe and professional manner.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Explain the structure, classification and significance of a range of micro-organisms including bacteria, viruses and fungi.
2	Demonstrate key laboratory skills pertinent to practical investigations in microbiology and immunology.
3	Discuss the human immune system, its functions, mechanisms of action, including acute and chronic inflammation and innate and acquired immunity.

Assessment

Indicative Assessment Tasks:
Assessment 1. Coursework. Students will complete a digital workbook comprising a series of short answer questions testing their knowledge and understanding of a range of micro-organisms. Guideline word count 1200 words.

Assessment 2. Report. Students will complete a laboratory report based upon a designated laboratory practical class. Word count 1000 words.

Assessment 3. Poster Presentation. Students will prepare a poster using appropriate software in a designated topic within immunology, and answer questions about the content from tutors.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1	Coursework	30%
2	2	Report	20%
3	3	Poster Presentation	50%

Derogations

N/A

Learning and Teaching Strategies

Core knowledge will chiefly be delivered by tutor-led classroom-based sessions. Students will be expected to engage with a variety of support material provided on the VLE in order to enhance their learning. A number of practical laboratory sessions will enable students to master key experimental skills pertinent to the module content.

Indicative Syllabus Outline

This module introduces students to both microbiology and immunology, providing foundations for further studies in the topics at levels 5 and 6. It seeks to develop a broad knowledge base across the two topics, reinforced with selected practical sessions.

Key topics:
Bacteria: structure and classification; growth and genetics; isolation, culture and microscopy; role in the environment, beneficial and pathogenic roles in humans. Methods of control.
Viruses: structure and classification, replication, the infection cycle, importance as causative agents of disease.
Fungi: structure and classification, species of significance to humans.
Other Micro-organisms: Archaea, Protozoa, Algae, Slime molds
Microbiology Lab Skills: Aseptic technique, good practice and safety in the Microbiology Lab.
The human immune system: Cells of the immune system: macrophages, dendritic cells, eosinophils, basophils, mast cells and inflammatory markers.
Innate and Adaptive Immunity
Antigens, Antibodies and Antigen receptors
Immune related disease: Allergy response, Immunodeficiency, Auto-immune diseases,
Immunology Lab Skills: ELISA

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Goering, R., Dockrell, H., Zuckerman, M. and Chiodini, P.L. (2019) *Mims' Medical Microbiology and Immunology*. 6th Ed. London: Elsevier.

Other indicative reading

Abul, A.K., Lichtman, A.H. and Pillai, S. (2015) *Basic Immunology: Functions and Disorders of the Immune System*. Philadelphia, PA: Elsevier.

Garner, D. (2019). *Microbiology Nuts & Bolts: Key Concepts of Microbiology & Infection* 3rd Ed. Microbiology Nuts and Bolts

Levinson, W., Chin-Hong, P., Joyce, E.A., Nussbaum, J. and Schwartz, B. (2018) *Review of Medical Microbiology and Immunology: A Guide to Clinical Infectious Diseases*.15th Ed. New York: McGraw Hill Education.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas. Click here to read more about the Glyndwr Graduate attributes

Core Attributes
Engaged
Creative
Enterprising
Ethical

Key Attitudes
Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Leadership and Team working
Emotional Intelligence
Communication