

Module specification

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Module code	SCI552
Module title	Applied & Medical Microbiology
Level	5
Credit value	20
Faculty	FAST
Module Leader	Peter Ella-Tongwiis
HECoS Code	100353
Cost Code	GAFS

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Biomedical Science	Core
BSc (Hons) Biochemistry	Core
BSc (Hons) Forensic Science	Option
BSc (Hons) Forensic Science with Placement Year	Option

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	30 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	30 hrs
Placement / work based learning	0 hrs
Guided independent study	170 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	10/05/2023
With effect from date	September 2023
Date and details of revision	July 2023 APSC approval to add BSc (Hons) Biomedical Science And BSc (Hons) Biochemistry programme titles and derogation update
Version number	2

Module aims

The module develops students' skills and knowledge on the fundamental in microbiology. This will involve identification of microbes based on factors such as structure, staining profile, biochemical properties and other unique features. Sessions will cover a deeper understanding of important aspects such as lifecycles of microorganisms with emphasis on prevention, disease control and diagnosis.

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

1	Establish a broad and deep knowledge of microbial pathogens, their life cycles and interaction with human/other hosts and various routine/specialist testing.
2	Explore traditional and contemporary control measures for pathogenic microorganisms.
3	Explore the positive and negative aspects of microbial growth in a number of applied settings.
4	Facilitate the application of knowledge to real life through case study based roleplaying scenarios.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment 1:

Student will be given scenarios/cases and asked to develop a strategy for the Identification/management of an infective agent posing a significant health risk to a population. Assessment will be by means of power point presentations/ press conference assessing both their subject knowledge and professional conduct (20 minutes).

Assessment 2: Examination (1 hour)

The examination will test knowledge and analysis of the key pathogenic organisms in humans, and the clinical manifestations of infection on the human body.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	2-4	Presentation	60%
2	1	Examination	40%

Derogations

For BSc (Hons) Biomedical Science only: All elements of the module must be passed at or above 40%.

Compensation for failure is not permitted for this module and other "core" biomedical science modules across the programme.

Learning and Teaching Strategies

The module will be delivered in line with the University's Active Learning Framework and delivery of taught content in this module will involve flipped classroom, scale-up methodologies and lead lectures, seminars, tutorials, case studies and student-led presentations. Students will benefit from a structured programme of directed learning on the

VLE platform Moodle to supplement classroom learning by providing students with additional information and visual aids to further their understanding of the materials.

Indicative Syllabus Outline

The module seeks to enhance students' knowledge of important microbes of public health concern. This would be done by exploiting differences in structure, composition, biochemical profile and other unique features in order to identify and control microbes. This entails the student learning a significant core knowledge underpinning the subject and applying this in a role-playing task representing a real-life scenario.

Key topics:

Microbial Life Cycles and relevance to identification, control of infection and disease.
Control of Micro-organisms in the Human body – vaccination and antimicrobial therapies
Control of micro-organisms in the clinical and laboratory environment.
Sampling and processing methods.
Contamination avoidance procedures and aseptic techniques.
Health, safety and quality assurance in microbiology
Pathological microbes - Gram positive and gram-negative cocci/bacilli
Other Pathological Microbes.
Positive and negative impacts of microbes
Microbiological Test Methods in the Pathology Laboratory – key identification and screening methods in bacteriology and virology.

Indicative Bibliography:

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

Essential Reads

Murray, P.R., Rosenthal, K.S. & Pfaller, M.A. (2020), *Medical Microbiology*, 9th Edition, London: Elsevier.

Other indicative reading

Ford, M. (Ed.) (2019), *Medical Microbiology*, 3rd Edition, Oxford: Oxford University Press.
Goering, R., Dockrell, H., Zuckerman, M. & Chiodini, P.L. (2019), *Mims' Medical Microbiology and Immunology*, 6th Edition, London: Elsevier Health Sciences

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

Core Attributes

Engaged
Enterprising
Creative

Ethical

Key Attitudes

Commitment

Curiosity

Resilience

Confidence

Adaptability

Practical Skillsets

Digital Fluency

Organisation

Leadership & Team working

Critical Thinking

Emotional Intelligence

Communication