Module Specification

Module Summary Information

1	**Module Title**	Clinical Biochemistry and Cellular Analysis
2	**Module Credits**	20
3	**Module Level**	5
4	**Module Code**	BMS5001

5	**Module Overview**

Rationale:

Disruption of normal cellular and biochemical processes has an impact on an individual's health and wellbeing. In this module, you will investigate cellular and tissue function, and assess the investigative methods used for determining abnormalities at a biochemical and cellular level. These will include biochemical methods for detection of biological molecules. The module aims to bring together the ability to represent data in an appropriate manner and assess the impact on an individual's health. This will allow the information to be presented in a case specific manner, and information tailored to explain a specific individual and their health, and where appropriate to diagnose and monitor conditions. This will look at the principles of tests to investigate and determine the function and dysfunction of organs and systems and the changes seen in disease**.**

Aligns with the Programme Philosophy and Aims:

In this module, you will have the opportunity to act as an investigating scientist and observe cells and interpret molecular data from bodily fluids, which can help to establish a picture about an individual's health or the presence of disease. You will learn about specific techniques in the laboratory practically or virtually and use this acquired knowledge to work with your peers to interpret case study specific data. It will also encompass global implications of disease and the detection (screening), prevention and treatment strategies in order to help optimise health. This module will build upon the knowledge gained in the Level 4 Biochemistry and Fundamentals of Cell Biology and will feed forward into the Level 6 Pathophysiology, Neuroscience and Molecular Basis of Disease modules.

Learning and Teaching Strategy:

The module content will be delivered through a combination of key lectures, online material for support pre- and post- session activities, practical sessions and problem based learning around case study scenarios. This should allow students to have exposure to information from a range of cells and tissues and bodily fluids that simulate the testing that can help in the diagnosis of key conditions.

To achieve the required 20 credits for this module, you will need to dedicate at least 200 hours studying the module material. For this module, the time is broken down in an approximately 25:75 ratio (directed: self-directed). The scheduled learning activities will include lectures, tutorials, practical sessions and facilitated discussions; approximately 20% of this learning will take place in an online environment.

Assessment Strategy:
A summative written representation of one of the assessed case study scenarios as a leaflet (with a 1000 word limit) demonstrating all 3 learning outcome and discussing the data, cellular level disturbances and recommendations for optimising health. This will be submitted electronically and also displayed in a group setting where individuals will be expected to answer questions from Staff for 5 minutes to authenticate the originality of their work.

6	Indicative Content

A range of biochemical methods will be used to discuss health and illness related to a few examples from each of the key systems listed below;-

- Endocrine system with particular focus on diabetes and thyroid function.
- Blood gases analysis and interpretation in altered states of health e.g. respiratory and metabolic and mixed acidosis.
- Renal function to include interpretation of urinalysis and glomerular filtration rate.
- Digestive function and dysfunction relating to malabsorption and interpretation of faecal matter.
- Liver function tests and metabolic pathway of liver jaundice.
- Reproductive system relating to fertility and an assessment of reproductive health.
- Focusing on cardiovascular health and assessing cardiac markers such as cholesterol and Troponin T.

7	Module Learning Outcomes On successful completion of the module, students will be able to:	
	1	Analyse data from biological tests and use this to determine an individual's health status.
	2	Discuss the cellular changes and mechanisms that account for an individual's health status.
	3	Make recommendations to help optimise an individual's health status.

8	Module Assessment		
Learning Outcome			
	Coursework	**Exam**	**In-Person**
1,2,3	**x**	**-**	**x**

9	Breakdown Learning and Teaching Activities	
Learning Activities		**Hours**
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable		54
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE		24
Private Study (PS) includes preparation for exams		122
Total Study Hours:		200