



MODULE SPECIFICATION

Part 1: Information			
Module Title	Molecular Cell Biology		
Module Code	USSJXR-15-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Health & Applied Sciences	Field	
Department	HAS Dept of Applied Sciences		
Module type:	Standard		
Pre-requisites	Cells, Biochemistry and Genetics 2019-20		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: This module complements the optional level two modules and provides adequate foundation knowledge of key concepts, which will be vital for level three studies.</p> <p>Educational Aims: The module will also equip students with essential laboratory techniques such as cell culture, key molecular techniques such as DNA isolation from mammalian cells, endpoint PCR, and DNA sequencing, followed by cutting-edge genomic analysis and their application to the study and diagnosis of disease. Also, genomic, transcriptomic and proteomic methods used to analyse and study human chromosomes and DNA, thereby, enhancing the repertoire of practical skills of UWE graduates.</p> <p>Outline Syllabus: Molecular Cell Biology examines the molecular basis of genetic disease; from altered genotype to diseased phenotype.</p> <p>Molecular and Cell Biology will uncover:</p> <p>The nature of DNA mutations and their effects on protein structure and function</p> <p>How altered protein structure and function affects cellular biology including cell signalling, metabolism and tissue homeostasis</p>

STUDENT AND ACADEMIC SERVICES

The subsequent pathological consequences of altered cellular biology

Bioinformatics and systems biology: the computation of high volumes of biological data and the properties of a network of interacting components in a system, as well as the components themselves, including an appreciation of the algorithms to decipher biological relationships.

Teaching and Learning Methods: The module will be delivered as a series of online lectures and three in lab. practical classes with hands on experience of laboratory techniques and computational data analysis.

Part 3: Assessment

Component A – An online examination with a 24 hour window for completion, anticipated to take two hours to complete. This exam will allow students to demonstrate their understanding of the subject matter by applying course content to a different context.

Component B - An online quiz, after each in-class and online practical session, which reviews the content of each practical session and examines the students ability to recognise and perform molecular techniques and interpret the data generated. There will be a series of six online quizzes to be completed after each practical session, and they will last approximately 10 minutes each.

Formative assessment opportunities will be presented following each practical. Component B, while contributing to the summative assessment, will also be used as a feed-forward, formative assessment to aid preparation for component A.

First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	Online examination (24 hours)
Set Exercise - Component B		50 %	Interpretation of laboratory techniques and data (online).
Resit Components	Final Assessment	Element weighting	Description
Examination - Component A	✓	50 %	Online exam (2 hours), Assessment Period 3
Set Exercise - Component B		50 %	Interpretation of laboratory techniques and data (online)

Part 4: Teaching and Learning Methods

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

Learning Outcomes	Module Learning Outcomes	Reference
	Understand how genetic mutations change protein structure and function	MO1
	Explain how altered protein structure and function affects cellular physiology and tissue homeostasis	MO2
	Identify the effect of altered physiology in the pathology of disease	MO3
	Develop their skills in data analysis and interpretation	MO4
	Explain how molecular techniques are applied to study and diagnose pathological conditions	MO5

STUDENT AND ACADEMIC SERVICES

Contact Hours	Independent Study Hours:	
	Independent study/self-guided study	117
	Total Independent Study Hours:	117
	Scheduled Learning and Teaching Hours:	
	E-learning/online learning	33
	Total Scheduled Learning and Teaching Hours:	33
	Hours to be allocated	150
	Allocated Hours	150
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/index.html</p>	

Part 5: Contributes Towards

This module contributes towards the following programmes of study: