UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title:	'Omics' Techniques in Biology and Healthcare
Module Code:	BIS7019-B
Academic Year:	2019-20
Credit Rating:	20
School:	School of Chemistry and Biosciences
Subject Area:	Biomedical Science
FHEQ Level:	FHEQ Level 7 (Masters)
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	**Hours**
Lectures	24
Seminar	9
Tutorials	5
Directed Study	162

Availability	
Occurrence	**Location / Period**
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

The module aims to develop the students' knowledge of new and emerging technologies in genomics, proteomics and metagenomics and to explain the basis of the collection and use of 'big data' in biological research and healthcare. The module aims to develop students' critical thinking via group seminars and autonomous learning via independent interrogation of the literature.

Outline Syllabus

Mechanisms of genomic variation, next generation and third-generation sequencing, genomic data aggregation and interpretation, proteomic and metagenomic techniques and applications in

research. Implications of specific genomic variations for the individual in areas such as cancer therapeutics and inherited conditions. Fundamentals of evaluating research and healthcare-derived data, good practice in data-generation and data-mining.

Learning Outcomes

1	Demonstrate knowledge and understanding of current and emerging technologies in genomics, proteomics and metagenomics and their role in research and healthcare
2	Explain how 'Omics' technologies contribute to knowledge, management and therapeutics in fields such as cancer, inherited conditions and infectious diseases
3	Demonstrate an ability to interpret, synthesise and critically evaluate complex issues within the field of 'Omics' techniques and their application
4	Demonstrate an ability to communicate complex issues within the field of 'Omics' techniques and their application
5	Demonstrate understanding of GDPR compliance for biological and healthcare projects

Learning, Teaching and Assessment Strategy

Lectures, individual and group problem-based learning, case-studies, group discussions.

Knowledge and understanding-based elements to be assessed using a 90-minute e-assessment within the VLE environment consisting of short answer questions (module learning outcomes 1,2,5).

In addition learning outcomes 1- 4 will be assessed by a critical review that requires you to work in a self-directed fashion and engage with the wider scientific literature in order to critically address a relevant topic in the 'omics' field. This coursework will be completed individually during the semester and submitted via Turnitin. You will be given a title via Canvas and will be required to generate a 3000-word critical review of this topic.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Coursework	Critical review that addresses a relevant topic in the 'omics' field	0-3000 words	60%
Summative	Coursework	e-assessment consisting of short answer questions	90 minutes	40%
Formative	Coursework	e-assessment consisting of short answer questions	45 minutes	%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html.

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.