

Module Details	
Module Title	'Omics' Techniques in Biology and Healthcare
Module Code	BIS7019-B
Academic Year	2021/2
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 7

Contact Hours	
Type	Hours
Lectures	8
Practical Classes or Workshops	20
Tutorials	10
Directed Study	162

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

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	
Outcome Number	Description
01	1 Demonstrate knowledge and understanding of current and emerging technologies in genomics, proteomics and metagenomics and their role in research and healthcare
02	2 Explain how 'Omics' technologies contribute to knowledge, management and therapeutics in fields such as cancer, inherited conditions and infectious diseases
03	3 Demonstrate an ability to interpret, synthesise and critically evaluate complex issues within the field of 'Omics' techniques and their application
04	4 Demonstrate an ability to communicate complex issues within the field of 'Omics' techniques and their application
05	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	Weighting
Summative	Coursework - Written	Critical review that addresses a relevant topic in the 'omics' field	60%
Summative	Computerised examination	e-assessment consisting of short answer questions (1.5 Hrs)	40%
Formative	Coursework	e-assessment consisting of short answer questions	N/A

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.

