

## MODULE DESCRIPTOR

### Module Title

Omic Technologies

Reference	PL4920	Version	1
Created	August 2022	SCQF Level	SCQF 10
Approved	June 2023	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

### Aims of Module

To enable students to appreciate the relevance and application of a number of Omic technologies in the analysis of biomolecules in research and professional practice.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Discuss the principles of Omics technologies in biological and biomedical science.
- 2 Discuss critically industrial or clinical genetic applications including genomics and proteomics in relation to health and disease.
- 3 Discuss critically pharmacogenetics and personalised medicine including nutrigenomics and metabolomics in relation to health and disease.

### Indicative Module Content

Genomics will include principles and applications of DNA sequencing, DNA microarrays and their relevance in targeted gene expression and function analysis in health and disease. Genomic, transcriptomic and proteomic methods used to analyse and study human chromosomes and DNA. Proteomics will include 2-D gel electrophoresis, protein arrays and their relevance in targeted protein expression and function analysis in health and disease. The application of molecular biology and Bioinformatics in medicine. Pharmacogenetics and personalised medicines will include the concept of metabolomics and nutrigenomics. Relevance of epigenetics in health and disease. Genetic testing and associated ethical issues.

### Module Delivery

This module is delivered by lectures, tutorials and seminars.

Indicative Student Workload	Full Time	Part Time
Contact Hours	24	N/A
Non-Contact Hours	126	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

## ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

### Component 1

Type:	Practical Exam	Weighting:	100%	Outcomes Assessed:	1, 2, 3
Description:	Oral presentation with abstract				

## MODULE PERFORMANCE DESCRIPTOR

### Explanatory Text

Component 1 (PE1) comprises 100% of the module grade. A minimum of a Grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	F
NS	Non-submission of work by published deadline or non-attendance for examination

## Module Requirements

Prerequisites for Module	None, in addition to SCQF level 10 entry requirements or equivalent.
Corequisites for module	None.
Precluded Modules	None.

## INDICATIVE BIBLIOGRAPHY

1	DALE, J.W. and VON SCHANTZ, M. 2007. From Genes to Genomes, Concepts and Applications of DNA Technology. 2nd Edition. Wiley.
2	PAGEL, M. and POMIANKOWSKI, A. 2008. Evolutionary Genomics and Proteomics. 1st Edition. Sinauer.
3	LESK, A.M. 2019. Introduction to Bioinformatics. 5th Edition. Oxford University Press.
4	FERGUSON, L.R. 2016. Nutrigenomics and Nutrigenetics in Functional Food and Personalized Nutrition. 1st Edition. CRC Press.