

Genes and Genomes

Module Information

2022.01, Approved

Summary Information

Module Code	5205NATSCI
Formal Module Title	Genes and Genomes
Owning School	Biological and Environmental Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Biological and Environmental Sciences

Learning Methods

Learning Method Type	Hours
Lecture	28
Practical	19
Workshop	6

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To provide an understanding of how genome sequencing techniques operate, and how state of the art genetic and genomic tools and techniques are used to understand disease and other phenotypes.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Discuss the mechanisms by which genes, the environment, and genetic variation contribute to phenotype.
MLO2	2	Explain the principles of genome sequencing methodologies and how genomes are assembled and annotated
MLO3	3	Explain how, and why, model organisms are utilised in genetic and genomic research
MLO4	4	Use computational bioinformatics approaches to analyse genetic data and identify and evaluate associations between genetic variation and phenotype

Module Content

Outline Syllabus	The genetic basis of phenotypes and the functional role of genes. The history, application and utility of genome sequencing. The role of model organisms in the understanding of the genetics of disease, and other phenotypes. The use of bioinformatics and allied statistical methods to analyse genetic data and the implications of large datasets (big data) for analyses and data handling.
Module Overview	This module enables you to study how state-of-the-art genetic and genomic tools are used to understand how genes combine with the environment to control organismal phenotypes and disease states. It covers methodologies, practical applications and recent examples of the application of genetics and genomics in the fields of biology, medicine and evolution.
Additional Information	This course studies how state of the art genetic and genomic tools are used to understand how genes combine with the environment to control organismal phenotypes and disease states. It covers methodologies, practical applications and recent examples of the application of genetics and genomics in the fields of biology, medicine and evolution. This module is recommended as prior study for any student wishing to select 6203NATSCI.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Practical Report	50	0	MLO1, MLO3, MLO4
Centralised Exam	Final Exam	50	2	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Craig Wilding	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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