Molecular Forensics

Module Information

2022.01, Approved

Summary Information

Module Code	5104FSBMOL
Formal Module Title	Molecular Forensics
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	26
Practical	12
Workshop	20

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	The module's credit rating is 20 credits at level 5. The module is core for the forensic science programme. The content of the module focusses on the genetic basis for forensic identification, commonly used molecular techniques used by DNA analysts and the analyses of forensic data.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Compare commonly used forensic genetic methods and markers and apply them to forensic casework examples.
MLO2	2	Analyse molecular data relevant to forensic identity testing
MLO3	3	Debate the limitations of commonly used forensic genetic techniques

Module Content

Outline Syllabus	The following topics will be covered: • Genetic polymorphism, mutation, population genetics.• Principles of molecular marker selection, dominance, co-dominance, inheritance, neutral vs selected markers, lineage markers.• Development of forensic genetic identity testing, key concepts and issues relating to implementation.• Applied forensic laboratory techniques e.g. RFLP, PCR, PCR-RFLP, RAPD, DNA Extraction, qPCR (DNA quantification), RT-PCR, DNA sequencing, genotyping, RNA typing.• Forensic analysis techniques, band interpretation, STR analyses, DNA mixture analysis, DNA sequence analyses, phylogenetic reconstruction, impact of population genetic theory on analysis.• Quality assurance and quality control issues relating to use of forensic genetic techniques. • Bioinformatic techniques relating to marker selection and analyses.
Module Overview	The module focuses primarily on DNA techniques and their impact on forensic science. Skills developed during this module include: analysing and solving problems, teamwork, initiative, creativity, written and oral communication, numerical reasoning, personal planning and organisation, information and communication technology, as well as subject-specific skills.
Additional Information	The module focuses primarily on DNA techniques and their impact on forensic science. Skills developed during this module include: analysing and solving problems, teamwork, initiative, creativity, written and oral communication, numerical reasoning, personal planning and organisation, information and communication technology, as well as subject-specific skills.

Assessments

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

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Nicholas Dawnay	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings