Liverpool John Moores University

Title:	BIOANALYTICAL TECHNIQUES
Status:	Definitive
Code:	**7104FSBMOL** (123660)
Version Start Date:	01-08-2021
Owning School/Faculty:	Pharmacy & Biomolecular Sciences
Teaching School/Faculty:	Pharmacy & Biomolecular Sciences

Team	Leader
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Komang Ralebitso Senior	
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Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	40
Total Learning Hours:	200	**Private Study:**	160		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	8
Practical	21
Seminar	2
Workshop	6

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Report	Journal paper based on practical sessions incorporating analysis of papers relevant to the subject	50	
Exam	Exam	Students will answer one pre-agreed question in detail in addition to unseen material	50	3

Aims

To provide students with an understanding of advanced molecular techniques relevant to forensic science including DNA and RNA based techniques.
To enable students to understand and perform appropriate interpretation methods
To develop critical awareness of the limitations of these techniques and their use in the criminal justice system.

Learning Outcomes

After completing the module the student should be able to:

1	Perform relevant advanced techniques and critically analyse and interpret the results
2	Critically evaluate current research and the application of relevant techniques with regard to the criminal justice system
3	Demonstrate a comprehensive understanding of the subject

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Journal style report	1	2
Examination	2	3

Outline Syllabus

Advanced DNA techniques are provided which include:
1) The design, development and validation of STR multiplex kits.
2) The extraction of DNA using validated kits and methodology.
3) The quantification of DNA using validated kits and analysis software.
4) The design of PCR primers for forensic species identification.
5) The analysis of DNA sequence data for the investigation of food fraud.
6) Lectures in human DNA analysis and wildlife forensic genetics.
7) Lectures in forensic biome analysis.

Advanced RNA techniques are provided which include:
1) Lectures in the use of RNA markers for body fluid identification.
2) Methods of preserving samples for RNA analysis.
3) RNA extraction and quantification.
4) Analysis of RNA markers for body fluid identification.

Learning Activities

Lectures, laboratory investigations, workshops and seminars. Private study

Notes

This module looks at advanced level bioanalytical techniques relevant to forensic science including recent and new technologies. These are analysed and discussed with reference to the requirements of the criminal justice system.