MODULE DESCRIPTOR

Module Title

Analytical Techniques for Life Sciences

Reference	AS1802	Version	3
Created	August 2021	SCQF Level	SCQF 7
Approved	May 2011	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To provide students with a broad understanding of the principles of a range of analytical techniques and to provide an appreciation of their uses.

Learning Outcomes for Module

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

1	Understand the theoretical principles and applications of immunological techniques.
2	Understand the theoretical principles of radioactivity and appreciate the uses of radioisotopes.
3	Understand the theoretical principles of centrifugation, chromatographic, electrophoretic and selected electroanalytical techniques and their applications.

Indicative Module Content

Immunological Methods: Basic structure of antibodies, polyclonal and monoclonal antibodies, production & uses. Agglutination & precipitation tests. Imunodiffusion, immunelectrophoretic, radioimmunological, complement-based and enzyme-linked immunosorbent assays. Radioactive Isotopes and their Uses: Radioisotopes and radioactive decay, measurement of radioactivity, radiological protection. Centrifugation: Principles, types of centrifuges and separation methods. Electrophoresis: Principles, protein and nucleic acid separation techniques, detection and applications. Introduction to Electroanalytical Techniques: Potentiometry, ion-selective electrodes, oxygen electrodes, glucose electrodes. Chromatography: Introduction to gas (GC), high performance liquid (HPLC), thin-layer chromatography (TLC) and FPLC.

Module Delivery

This is a lecture based module supplemented by tutorials and guided reading.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	40	N/A
Non-Contact Hours	110	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:	Examination	Weighting:	100%	Outcomes Assessed:	1, 2, 3
Description:	Unseen, closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

Component 1 (EX1) 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: a score of 70% or above is required.
B	B: a score of between 60-69% is required.
C	C: a score of between 50-59% is required.
D	D: a score of between 40-49% is required.
E	E: a score of between 35-39% is required.
F	F: a score of less than 35% is required
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None, in addition to course entrance requirements.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1. REED, R., HOLMES, D., WEYERS, J. AND JONES, A. *Practical Skills in Biomolecular Sciences*. Current Edition. Pearson Education Ltd.

2. LANGFORD, A., DEAN, J.R., REED, R., HOLMES, D., WEYERS, J. AND JONES, A. *Practical Skills in Forensic Science* . Current Edition. Pearson Education Ltd.