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.

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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.