Module Title **Analytical Techniques for Life Sciences** **Keywords** Immunological, radioisotope, centrifugation, electrophoretic, electroanalytical and chromatographic techniques.	Reference AS1802 SCQF SCQF Level 7 SCQF Points 15 ECTS Points 7.5 Created January 2004 Approved May 2010 Amended Version No. 1

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

None, in addition to course entrance requirements.

Corequisite Modules

None.

Precluded Modules

None.

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

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.

Indicative Student Workload

Contact Hours	Full Time
Lectures	34
Tutorials	6
Directed Study	
Directed Study	30

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.

Private Study

Private Study	80

Mode of Delivery

This course is delivered by formal lectures and directed study with appropriate tutorial support.

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,2,3

The examination will be closed book.

Indicative Bibliography

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