Module Title	Reference AS1099 SCQF SCQF Level 7
Bioanalytical Techniques	SCQF Points 15 ECTS Points 7.5
Keywords Immunological, radioisotopic, centrifugal, electrophoretic, electroanalytical and	Created January 2004
chromatographic techniques, Certificate of Competence Portfolio of Registration.	Approved January 2005 Amended

Prerequ	isites	for	Module
1 1 51 54 4	121162	IUI	MIUUUIC

None in addition to standard entrance requirements.

Corequisite Modules

None

Precluded Modules

None.

Aims of Module

To provide students with a broad understanding of the principles of bioanalytical instrumentation 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.Explain the theoretical

Advanced Electrophoretic
Techniques: Isoelectric focusing
and 2-D gel electrophoresis.
Overview of Electroanalytical
Techniques: Potentiometry,
ion-selective electrodes,
voltammetric methods, oxygen
electrodes, glucose electrodes.
Chromatographic Separations:
gas, high-performance liquid and
thin-layer chromatography, FPLC
and capillary elecrophoresis.

Version No.

1

Indicative Student Workload

Contact Hours	Full Time
Lectures	30
Workshops	10
Tutorials	10
Assessment	3
Directed Study	
Directed Study	30
Private Study	
Private Study	67

- immunological techniques.
- 2.Explain the theoretical principles of radioactivity and appreciate the uses of radioisotopes.
- 3. Explain the theoretical principles of centrifugation techniques and appreciate the scope of their applications.
- 4.Explain the theoretical principles of electrophoretic and some electroanalytical technques and some of their applications.
- 5.Explain the theoretical principles and applications of a range of chromatographic techniques.

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: Radioactive decay, measurement of radioactivity, biologically useful radioisotopes and radiological protection. Centrifugation: Principles, types of centrifuges, separation methods and safety.

Mode of Delivery

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

Assessment Plan

	Learning Outcomes Assessed
Component 1	2,3,4,5
Component 2	1

The examination will be closed book

The coursework is on Immunological Methods.

Indicative Bibliography

- 1.REED, R., HOLMES, D., WEYERS, J. AND JONES, A., 2003. *Practical Skills in Biomolecular Sciences*. 2nd ed. Pearson.
- 2.HOLME, D.J. AND PECK, H., 1998. *Analytical Biochemistry*. 3rd ed. Longman.

Additional Notes

This module covers, at least in part, the following Health Professions Council Standards of Proficiency for Biomedical

Electrophoresis: Principles, protein and nucleic acid separation techniques, detection and applications.

Scientists (035/SOP/BMS/A5 July 2004): 3a.1