

Liverpool John Moores University

Title: Quantitative Analytical Chemistry
Status: Definitive
Code: **3501YAUNUT** (127920)
Version Start Date: 01-08-2021

Owning School/Faculty: Sport and Exercise Sciences
Teaching School/Faculty: Sport and Exercise Sciences

Team	Leader
Elizabeth Mahon	Y

Academic Level: FHEQ3 **Credit Value:** 20 **Total Delivered Hours:** 42
Total Learning Hours: 200 **Private Study:** 158

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	24
Practical	16

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Examination will cover theoretical principles in Quantitative Analytical Chemistry. Two hours in duration.	30	2
Test	Test	In class test for Quantitative Analytical Chemistry	20	
Report	Report	Experimental Report for Experiments of Quantitative Analytical Chemistry	30	
Practice	Practice	Classroom Experiment for Experiments of Quantitative Analytical Chemistry	20	

Aims

The aim of this module is to enable students to understand the basic principles, concepts and theories of quantitative analytical chemistry. Through theoretical and practical study students will master some basic analytical methods, have an understanding of the development process, grasp the characteristics of quantitative analytical chemistry and recognise connections with other disciplines. Through experimental work students will master basic laboratory operation skills, learn to process experimental data and analyse results.

Learning Outcomes

After completing the module the student should be able to:

- 1 Develop an understanding of the basic principles, concepts and theories of quantitative analytical chemistry
- 2 Develop the skills of titration operation and classical chemical analysis methods
- 3 Work in teams to master basic instrumental analysis

Learning Outcomes of Assessments

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

Exam	1	
In class test	1	
Experimental Report	2	3
Classroom Experiment	2	3

Outline Syllabus

Introduction to quantitative analytical chemistry: classification of analytical chemistry; general procedures for quantitative analysis.

Errors and data processing in quantitative analysis: accuracy and precision.

Overview of titration analysis: acid-base titration.

Absorptiometry; principles of light absorption and the molecular absorption spectrum; colour reaction principle and conditions; measurement of absorbance; Lambert-Beer Law.

Learning Activities

This module is delivered through lecture and practical sessions. Lectures will provide the theory to support laboratory work. Students are encouraged to preview experiments before class. During practical sessions tutors will explain the principles of the experiment and demonstrate the experimental operation. All practicals are supervised by the module team and students will be guided through set up, analysis

and write up.

Notes

Students will be taught the theory in lecture sessions then have the opportunity to apply this knowledge by carrying out practical experiments in the laboratory. Students will have the opportunity to preview experiments before laboratory sessions.