UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title:	Principles of Analytical Science
Module Code:	CFS6019-B
Academic Year:	2019-20
Credit Rating:	20
School:	School of Chemistry and Biosciences
Subject Area:	Chemistry and Forensic Science (ceases 2016)
FHEQ Level:	FHEQ Level 6
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	**Hours**
Lectures	36
Directed Study	162
Examinations DO NOT USE	2

Availability	
Occurrence	**Location / Period**
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

This module comprises two main components:

The first will provide fundamental knowledge concerning strategies for Sampling, Data Analysis, Reporting, Quality Assurance and Quality Control, Numerical and IT skills, and Safety in relation to analytical science.

The second will provide the general introductory principles and a theoretical understanding of a range of instrumental analytical techniques and their applications. The module aims to provide the background knowledge needed for an understanding of the various principles discussed in greater detail in the other modules.

Outline Syllabus

Course philosophy and rationale. Fundamental principles of analytical science and introduction to chemical metrology: Introduction, Data analysis, Reporting, Numerical and IT skills, Health and Safety, Sampling, Chemometrics, Sample preparation, Quality assurance and Quality control.

General introductory principles fundamental to a wide range of analytical techniques: Classical methods, The interaction of electromagnetic radiation and matter, Mass spectrometry, Imaging, Compound and molecule specific analysis, Separation in analytical science, Surface and Trace Analysis, Other methods.

Learning Outcomes

1	Analyse, interpret, manipulate and present analytical data using Numerical, Statistical and IT skills to solve structural/compositional problems.
2	Relate the key principles of a range of analytical techniques and select appropriate techniques to address specific analytical applications.
3	Apply enhanced analytical and problem-solving skills.
4	Explain to non-specialists how analytical chemistry can provide information relating to multidisciplinary subject areas.
5	Apply safety legislation and best practice with regards to chemical and biological samples (including human material).
6	Be familiar with different formats for reporting scientific results.

Learning, Teaching and Assessment Strategy

This module will be presented as a series of lectures and structured workshops sessions.

Lectures will be used to introduce key principles and generic skills. These will be followed by workshop sessions which will be used to develop case studies and problem solving skills.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Examination - closed book	A formal exam covering the whole syllabus . Short questions followed by longer 'essay type' questions.	2 hours	50%
Summative	Coursework	Problem solving exercise (2000 words equivalent)	0 hours	50%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html.

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.