

Module Details	
Module Title:	Foundation in Chemistry
Module Code:	CHE3001-B
Academic Year:	2019-20
Credit Rating:	20
School:	School of Chemistry and Biosciences
Subject Area:	Chemistry
FHEQ Level:	FHEQ Level 3
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	Hours
Lectures	30
Practical classes and workshops	20
Tutorials	10
Directed Study	140

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims
This module aims to provide students with the chemistry knowledge and skills required for a successful transition to degree-level study in disciplines which require a academic background in this subject.

Outline Syllabus
Atomic structure: nuclear and electronic (up to s,p,d orbitals). Chemical equations. Mole Concept, relative atomic/molar masses, molar volume, reacting masses, molar conc. Intramolecular bonding: ionic, covalent, dative, electronegativity, polarity. Intermolecular

bonding: hydrogen, Van der Waals bonding. Nature of organic chemistry: alkanes, alkenes, arenes.
 Organic functional groups (halogen, alcohol, aldehyde, ketone, carboxylic acid, ester and amine).
 Isomerism: structural, geometric and optical.
 Principles of nomenclature.
 Enthalpy and entropy changes. Hess` Law. Rate equations. Catalysts including enzymes.
 Activation energy. Equilibrium, equilibrium constant (Kc), Le Chatelier`s Principle. Effect of concentration, pressure and temperature. Strong and weak acids and bases. Acid ionisation constant of weak acids. Buffer solutions. Calculation of pH.
 Rates of organic reactions , mechanisms and equations
 Laboratory techniques and spectroscopic characterisation of organic compounds. Interpretation of simple spectra and structure elucidation

Learning Outcomes

1	Describe, explain and interpret phenomena and effects in terms of chemical principles and concepts, including the key features of the structure of atoms and molecules, chemical bonding, and the structure and reactivity of compounds
2	Apply chemistry principles and mathematical methods in solving problems in familiar and unfamiliar situations involving chemical quantities, thermochemistry, reaction kinetics, equilibria, and acid-base chemistry.
3	Apply knowledge to practical application and interpret findings
4	Access and analyse information independently and make reasoned judgements.
5	Demonstrate the use of IT skills
6	Communicate scientific information effectively, using specialist vocabulary where appropriate

Learning, Teaching and Assessment Strategy

Students will develop understanding and application of knowledge through the use of lectures, tutorials and practical application which will be evidence based and research informed. This can include both face to face and online learning. These will facilitate the achievement of learning outcomes 1,2 and 3.

Learning outcomes 4, 5 and 6 will be facilitated through directed study and the application of theory to practice which will be undertaken in a laboratory setting.
 Formative feedback and opportunity to undertake practice assessments will be available.

The module VLE site will support students to further enhance understanding and the application of the knowledge. The site will host a range of online resources, class resources, directed reading lists with guided reading activities and external links. Students will be supported to use PebblePad to reflect on their personal development throughout the programme.

Assessment 1: will assess LO's 1, 2 and 3

Assessment 2: will assess LO's 1, 2, 3, 4, 5 and 6

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Laboratory Report	Report relating to practical tasks undertaken in lab sessions		40%
Summative	Examination - MCQ		1 hour	60%

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.