

## CHEM S7Z04: Fundamental Chemistry

Module Details	
Module Code:	CHEM S7Z04
Full Title:	Fundamental Chemistry <b>APPROVED</b>
Valid From::	Semester 1 - 2018/19 ( September 2018 )
Language of Instruction:	English
Duration:	1 Semester
Credits::	7.5
Module Owner::	Noelle Cunning
Departments:	Unknown
Module Description:	<ul style="list-style-type: none"><li>•To provide an environment where the students are encouraged to acquire an inquiring, investigative approach to chemistry and to develop their competence and confidence</li><li>•To train students in basic laboratory skills and Good Laboratory Practice</li><li>•To help students to learn some fundamental aspects of chemistry especially chemical terminology and conventions, the periodic table, formulae, basic principles and laws of chemistry and their applications and scope</li><li>•To encourage students to appreciate the complexity and applications of chemistry in the pharmaceutical/biopharmaceutical and environmental areas.</li><li>•To train students in concise, accurate and neat experimental report writing.</li></ul>

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	Module Learning Outcome Description
MLO1	Describe the basis of Atomic Theory and Bonding
MLO2	Define and relate atoms, molecules, moles, molar mass and molarity
MLO3	Use the basic principles of stoichiometry
MLO4	Explain how to perform dilutions and carry out volumetric analysis
MLO5	Perform basic laboratory skills and apply Good Laboratory Practice (GLP)
Pre-requisite learning	
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
No recommendations listed	

<b>Module Indicative Content</b>
<b>Introduction to chemistry</b> Matter and Measurement, Basic structure of the atom, Introduce the Periodic table
<b>Atomic theory</b> Atomic theory and structure, Electronic structure and configuration of atoms and ions.
<b>Bonding</b> Types of bonding, Intra and Intermolecular attractions, Electronegativity, Polarity, atomic and ionic radii, Periodic trends
<b>Stoichiometry and chemical reactions</b> Mass, moles, molecules and molarity; definitions, calculations and formulae. Limiting reagents and percentage yields
<b>Concentrations and Dilutions</b> Determination of solution concentrations and dilutions, PH scale
<b>Volumetric analysis</b> Introduce simple titrations; acid and base titrations and calculations
<b>Laboratory practicals</b> Introduction to basic laboratory skills: 1. General laboratory skills - balances and weighing (pipettes/burettes/volumetric flasks), Making solutions of known concentration and dilutions, Accuracy and Precision, Filtration 2. Gravimetric analysis 3. Volumetric Analysis - Acid and Base titrations, Apparatus, calculations and use of indicators

Module Assessment	
Assessment Breakdown	%
Course Work	10.00%
Practical	40.00%
Final Examination	50.00%
Module Special Regulation	

## Assessments

Full Time On Campus			
Course Work			
Assessment Type	Continuous Assessment	% of Total Mark	10
Marks Out Of	0	Pass Mark	0
Timing	S1 Week 6	Learning Outcome	1,2,3
Duration in minutes	0		
Assessment Description	Theory Assessment		
No Project			
Practical			
Assessment Type	Practical/Skills Evaluation	% of Total Mark	40
Marks Out Of	0	Pass Mark	0
Timing	n/a	Learning Outcome	2,3,4,5
Duration in minutes	0		
Assessment Description	The practical sessions will provide the student with the opportunity to apply the theory covered in formal lectures. After each practical, students will be required to submit a scientific practical report and a mark will be attributed to it.		
Final Examination			
Assessment Type	Formal Exam	% of Total Mark	50
Marks Out Of	0	Pass Mark	0
Timing	End-of-Semester	Learning Outcome	1,2,3,4
Duration in minutes	0		
Assessment Description	End-of-Semester Final Examination		
Reassessment Requirement			
A repeat examination			
Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.			

## Module Workload

### Workload: Full Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	No Description	Every Week	3.00	3
Practical	Contact	Students will be required to submit reports on a weekly basis. However, there will be an emphasis on results and conclusions at the beginning of the semester while gradually adding other sections such as introduction /procedure throughout the term.	Every Week	3.00	3
Tutorial	Contact	No Description	Every Week	1.00	1
Independent Study	Non Contact	No Description	Every Week	2.00	2
Directed Reading	Non Contact	No Description	Every Week	3.00	3
				Total Weekly Learner Workload	12.00
				Total Weekly Contact Hours	7.00

This module has no Part Time On Campus workload.

## Module Resources

### *Recommended Book Resources*

S. Zumdahl. Basic Chemistry, 7th or 8th Edition. Houghton Mifflin.

*This module does not have any article/paper resources*

### *Other Resources*

website, chemtutor,  
<http://www.chemtutor.com>  
website, chemguide,  
<http://www.chemguide.co.uk>