APPROVED

CHEM S7Z05: Chemistry

Module Details

Module Code:	CHEM S7Z05
Full Title:	Chemistry APPROVED
Valid From::	Semester 1 - 2018/19 (September 2018)
Language of Instruction:	
Duration:	1 Semester
Credits::	7.5
Module Owner::	Noelle Cunning
Departments:	Unknown
Module Description:	•Following on from Fundamental chemistry, this module will introduce the student to the concepts of chemistry. The module will also cover organic chemistry at a foundation level. The student will gain knowledge that can be applied to more advanced chemistry, pharmaceutical/biopharmaceutical and environmental courses

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Describe the basic principles of Thermodynamics, Acids and Bases, kinetics, chemical equilibrium, thermochemistry and electrochemistry
MLO2	Apply the principles above in laboratory practicals and use the principles to perform quantitative calculations.
MLO3	Recognise the common organic functional groups
MLO4	Identify simple organic compounds and name them by the IUPAC system

Pre-requisite learning
Module Recommendations *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).*
No recommendations listed

Module Indicative Content
Thermochemistry 1st law of thermodynamics, energy and its units, heats of reaction, enthalpy and enthalpy changes, thermochemical equations, Hess's Law.
Concepts of acids and bases Acids and Bases,ionic product of water, pH, pOH, pKa and acid/base indicators. Buffers and Henderson-Hasselbach equation. Related equations and sample calculations
Kinetics Reaction Rate, Rate laws and Rate constants, Reaction order
Electrochemistry Oxidation and Reduction, oxidation numbers, Redox reactions, electrochemical cell.
Chemical Equilibrium Le Chatelier's principle, Factors affecting position of equilibrium
Organic Chemistry Introduction to organic chemistry, common functional groups, naming and identifying simple organic compounds
Practical Practicals will be carried out to support the topics introduced in lectures. These practicals may include: Titrations, Hardness/alkalinity of water, a Problem based learning practical, pH of various chemicals/commercial products, Application of Hendersen equation, Heats/Enthalpy of reactions, Reaction kinetics, Virtual lab, MSDS of some organic chemistry groups.

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
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**	1,2
Duration in minutes	0		

Assessment Description
The practical sessions will provide the student with the opportunity to use 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. On occasion the students will submit an individual questionnaire on results/calculations pertaining to the labs.

Final Examination

Assessment Type	Formal Exam	**% of Total Mark**	50
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,3,4
Duration in minutes	0		

Assessment Description
End-of-Semester Final Examination

Module Workload

Workload: Full Time On Campus					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Lectures will outline the key aspects of each topic and provide a structure for class discussion and independent study conducted by students. Lecturers will actively encourage engagement of students in the classroom environment.	Every Week	3.00	3
Practical	Contact	A full write-up including a discussion will be submitted on alternate weeks. A partial write-up/questionnaire will be submitted on the other weeks.	Every Week	3.00	3
Tutorial	Contact	No Description	Every Week	1.00	1
Directed Reading	Non Contact	No Description	Every Week	3.00	3
Independent Study	Non Contact	Students will be given careful advice and guidance about independent study.	Every Week	2.50	2.5
				Total Weekly Learner Workload	12.50
				Total Weekly Contact Hours	7.00

This module has no Part Time On Campus workload.

Module Resources

Recommended Book Resources

S. Zumdahl. (2010), Basic Chemistry, 7th or 8th Edition.

S. Zumdahl. (2012), Chemical Principles, 7th Edition.

This module does not have any article/paper resources

Other Resources

Website, Royal Society Chemistry. http://www.rsc.org.

Website, Chemtutor. http://www.chemtutor.com.