

APPROVED**CHEM7001: Experimental Chemistry****Module Details**

Module Code:	CHEM7001
Title:	Experimental Chemistry APPROVED
Long Title:	Experimental Analytical, Organ
NFQ Level:	Intermediate
Valid From:	Semester 1 - 2019/20 (September 2019)
Duration:	1 Semester
Credits:	5
Field of Study:	4421 - Chemistry
Module Delivered in:	2 programme(s)
Module Description:	In this module the learner synthesises and characterises organic and pharmaceutical compounds; they also use a variety of analytical methods to analyses a range of samples and commercial products.

Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Apply laboratory skills for the synthesis of organic and pharmaceutical compounds
LO2	Evaluate different analytical methods for the analysis of food, beverage, pharmaceutical and general samples
LO3	Formulate written reports on experiments undertaken.
LO4	Analyse experimental data and draw appropriate conclusions therefrom
Dependencies	
Module Recommendations	
Incompatible Modules	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
Students to have a level 6 qualification in analytical and organic chemistry or related equivalent level discipline.	

Indicative Content
Organic and Pharmaceutical Synthesis Condensation reactions. Esterification using saturated and unsaturated acids. 1,4 and 1,2 Conjugate additions of a Grignard reagent to an ester. Michael addition. Reduction reactions using different reducing agents. Oxidation of alcohol. Synthesis and analysis of selected pharmaceutical agents.
Analytical Chemistry Practicals A range of techniques are used to analyse a variety of sample types such as beverages, food, pharmaceutical and general samples. The techniques include atomic absorption, flame photometry, spectrophotometry, fluorimetry, HPLC, GC, Karl Fisher and titrimetry

Module Content & Assessment

Assessment Breakdown	%
Coursework	100.00%

Assessments

Coursework			
Assessment Type	Practical/Skills Evaluation	% of Total Mark	50
Timing	Every Week	Learning Outcomes	1,2,3,4
Assessment Description Completion of weekly laboratory sessions			
Assessment Type	Written Report	% of Total Mark	30
Timing	Every Week	Learning Outcomes	2,3,4
Assessment Description Practical reports and data sheets completed and submitted within time-frame indicated by supervisor			
Assessment Type	Short Answer Questions	% of Total Mark	10
Timing	Week 6	Learning Outcomes	4
Assessment Description Assessment(s) based on experiments completed weeks (1-6)			
Assessment Type	Short Answer Questions	% of Total Mark	10
Timing	Week 13	Learning Outcomes	4
Assessment Description Assessment based on experiments completed weeks (7 - 12)			
No End of Module Formal Examination			
Reassessment Requirement			
Repeat the module The assessment of this module is inextricably linked to the delivery. The student must reattend the module in its entirety in order to be reassessed.			

Module Workload

Workload: Full Time					
Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lab	Contact	Synthesis of organic molecules	Every Second Week	2.50	5
Lab	Contact	Analysis of a range of samples and formulations	Every Second Week	2.50	5
Independent & Directed Learning (Non-contact)	Non Contact	Preparation for practicals, completion of reports, personal study	Every Week	2.00	2
Total Hours					12.00
Total Weekly Learner Workload					7.00
Total Weekly Contact Hours					5.00

Workload: Part Time					
Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lab	Contact	Synthesis of organic molecules	Every Second Week	2.50	5
Lab	Contact	Analysis of a range of samples and formulations	Every Second Week	2.50	5
Independent & Directed Learning (Non-contact)	Non Contact	Preparation for practicals, completion of reports, personal study	Every Week	2.00	2
Total Hours					12.00
Total Weekly Learner Workload					7.00
Total Weekly Contact Hours					5.00

Module Resources

Recommended Book Resources

McMurray John E.. (2016), Organic Chemistry, 9th. Brooks Cole, [ISBN: 9781305080485].

Supplementary Book Resources

Skoog Douglas A., West Donald M., Holler F. James, Crouch Stanley R.. (2014), Fundamentals of Analytical Chemistry, 9th. Brooks Cole, [ISBN: 978049555828].

Vollhardt, K. Peter C., Schore Neil E.. (2018), Organic Chemistry - Structure and Function, 8th. [ISBN: 978-1-319-079].

Harwood L.M.,Moody,C.J.,Percy, J.M.. (1999), Experimental Organic Chemistry., 2nd. Blackwell Scientific Publications, England, [ISBN: 9786632048199].

This module does not have any article/paper resources

This module does not have any other resources

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_SCHQA_8	Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance	-1	Mandatory
CR_SCHEM_7	Bachelor of Science in Analytical and Pharmaceutical Chemistry	-1	Mandatory