

Enquiry for Course Details

CHEM3244 Analytical techniques for pharmacy students (6 credits)		Academic Year	2020
Offering Department	Chemistry	Quota	35
Course Co-ordinator	Dr X Li, Chemistry < xiangli@hku.hk >		
Teachers Involved	(Dr K C J Wong, Pharmacology and Pharmacy) (Dr X Li, Chemistry)		
Course Objectives	The course covers theories and practicals on various analytical techniques used in pharmaceutical industry. Sampling and data analysis, method validation with respect to regulatory guidelines, ultraviolet/visible, infrared, fluorescence, atomic spectrophotometry, separation techniques such as gas chromatography and liquid chromatography, and modern mass spectrometry with its applications in protein sequencing will be covered in this course.		
Course Contents & Topics	Principles and applications of different analytical and measurement techniques in pharmaceutical sciences. Analysis and quality assurance: method validation, sampling, statistics, hypothesis tests Optical spectroscopy: Beer's law, UV/Vis, infrared, fluorescence, and atomic spectroscopy Separation and purification: gas chromatography and liquid chromatography Modern mass spectrometry: ionization techniques (ESI, MALDI), mass analysis techniques (TOF, quadrupole), protein sequencing.		
Course Learning Outcomes	On successful completion of this course, students should be able to:		
	CLO 1	demonstrate knowledge and understanding of principles of data analysis, optical spectroscopic methods, separation techniques, and modern mass spectrometry	
	CLO 2	describe the basic experimental setup and the properties of the basic components of the instruments used in the laboratory classes	
	CLO 3	apply experimental skills in experiments including sample preparation, standard solution preparation, instrument calibration, and matrix effect correction	
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in BPHM2136 (This course is for BPharm students only)		
Course Status with Related Major/Minor /Professional Core	2U000C00 Course not offered under any Major/Minor/Professional core 2020 Minor in Chemistry (Disciplinary Elective) 2019 Minor in Chemistry (Disciplinary Elective) 2018 Minor in Chemistry (Disciplinary Elective) 2017 Minor in Chemistry (Disciplinary Elective) 2016 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping			
Offer in 2020 - 2021	Y	2nd sem	Examination May
Offer in 2021 - 2022	Y		
Course Grade	A+ to F		
Grade Descriptors	A	- Demonstrate thorough grasp of the subject. - Show evidence of strong analytical abilities, logical and independent thinking, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. - Demonstrate highly proficient lab skills and techniques and critical use of data and results to draw appropriate and insightful conclusions. - Demonstrate highly effective organization and presentation skills.	
	B	- Demonstrate substantial grasp of the subject. - Show evidence of analytical abilities and logical thinking, some evidence of independent thinking, and ability to apply knowledge to familiar and some unfamiliar situations. - Demonstrate proficient lab skills and techniques and correct use of data and results to draw appropriate conclusions. - Demonstrate effective organization and presentation skills.	
	C	- Demonstrate general but incomplete grasp of the subject. - Show evidence of some analytical abilities and logical thinking, little evidence of independent thinking, and ability to apply knowledge to most familiar situations. - Demonstrate adequate lab skills and techniques and mostly correct but some erroneous use of data and results to draw appropriate conclusions. - Demonstrate moderately effective organization and presentation skills.	
	D	- Demonstrate partial but limited grasp, with retention of some relevant information, of the subject. - Show evidence of limited analytical abilities, little or no evidence of independent thinking, and limited ability to apply knowledge to solve problems. - Demonstrate partially effective lab skills and techniques and limited ability to use data and results to draw appropriate conclusions. - Demonstrate limited or barely effective organization and presentation skills.	
	Fail	- Demonstrate little or no grasp of the knowledge and understanding of the subject. - Show little or no evidence of analytical abilities, logical and independent thinking, and very little or no ability to apply knowledge to solve problems. - Demonstrate minimally effective or ineffective lab skills and techniques and misuse of data and results and/or unable to draw appropriate conclusions. - Demonstrate incoherent organization and poor presentation skills.	
Course Type	Lecture with laboratory component course		

Course Teaching & Learning Activities	Activities		Details	No. of Hours
	Laboratory			28
	Lectures			24
	Reading / Self study			100
Assessment Methods and Weighting	Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
	Examination		70	CLO 1,2,3
	Laboratory reports		15	CLO 1,2,3
	Test		15	CLO 1,2,3
Required/recommended reading and online materials	D.A. Skoog, F.K. Holler, S.R. Crouch: Principles of Instrumental Analysis (Thomson, latest edition). D.A. Skoog, D.M. West, F.J. Holler, and S.R. Crouch: Fundamentals of Analytical Chemistry (Thomson, latest edition).			
Course Website	NIL			
Additional Course Information	This course is for Pharmacy students ONLY. Laboratory classes are mandatory. Students must complete ALL experiments and laboratory reports to pass this course.			

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