

## Subject Description Form

<b>Subject Code</b>	ABCT3622
<b>Subject Title</b>	Experimental Techniques in Chemistry
<b>Credit Value</b>	1
<b>Level</b>	3
<b>Pre-requisite</b>	NIL
<b>Objectives</b>	To strength the basic techniques commonly used in chemical experimental studies, as well as safety practices in chemical laboratories with in-depth training to benchmark the standard practice in accredited laboratory
<b>Intended Learning Outcomes</b>	Upon completion of the subject, students will be able to: (a) understand the basic and common techniques used in chemical laboratories; (b) analyze and interpret properly data obtained from laboratory work; (c) understand the general laboratory safety and the chemical safety practices; (d) perform basic techniques according to the standard of accredited laboratory
<b>Subject Synopsis/ Indicative Syllabus</b>	<p><b><u>Laboratory Safety</u></b>            The PolyU Health and Safety Policy;            General laboratory safety practices;            Hazards and risk assessment;            Hazards associated with chemicals and chemical waste;            General knowledge on the handling, storage and disposal of chemicals and chemical wastes;            Personal protection and protective clothing for handling of potentially hazardous chemicals, chemical wastes and spillages;            Laws pertaining to the handling and storage of chemicals: dangerous goods, controlled chemicals, dangerous substances used in industry, disposal of chemical waste and others.</p> <p><b><u>Basic Solution Techniques</u></b>            Use of analytical balances, graduated glassware; water for laboratory use; concentrations and calculation;, preparation of laboratory solutions, reagents and standard solutions; dilutions and serial dilutions.</p> <p><b><u>General Laboratory Techniques</u></b>            Qualitative techniques for inorganic analysis, crystallization, gravimetric analysis, acid-base titration, , precipitation titration            Proper record keeping and documentation;            Proper data analysis and report writing</p>
<b>Teaching/Learning Methodology</b>	The basic principles and concepts of the basic laboratory techniques and laboratory safety will be delivered in the form of lectures. To practice, students will work individually or in teams in the laboratory sessions, and each session will be supplemented with in-lab briefing and demonstration.

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
			a	b	c	d		
	1. Laboratory performance	30%	✓	✓	✓			
2. Laboratory report	30%	✓	✓	✓				
3. Laboratory Quiz	10%	✓			✓			
4. Laboratory Quiz (practical)	30%	✓			✓			
Total	100 %							
	<p>Learning outcomes will be gauged through laboratory reports and quizzes. Student will also be assessed on their laboratory practices in selected laboratory sessions.</p> <p>Through the quizzes, students will be assessed on their understanding of the basic concepts and principles of the common laboratory techniques and safety.</p> <p>In the laboratory reports, students are expected to perform analysis on the data obtained as well as to interpret their findings. Their abilities in these aspects may thus be assessed.</p> <p>The performance of students during the laboratory sessions will be monitored and assessed to gauge their mastering of the basic techniques and their practice of laboratory safety.</p> <p>A practical based laboratory quiz will be arranged to test for the competency of the experimental skills of the students towards standard requirement in accredited lab.</p>							
Student Study Effort Expected	Class contact:							
	▪ Lectures						2 Hrs.	
	▪ Laboratory						16 Hrs.	
	Other student study effort:							
	▪ Self-study						50 Hrs.	
	▪ Laboratory reports						30 Hrs.	
	Total student study effort						98 Hrs.	
Reading List and References	<p>Skoog, D. A.; Holler, F. J. and Nieman, T. A. Principles of Instrumental Analysis (6<sup>th</sup> ed.) Brooks/Cole 2007</p>							