

**City University of Hong Kong
Course Syllabus**

**offered by Department of Chemistry
with effect from Semester A 2024/25**

Part I Course Overview

Course Title:	Research Methodology and Ethics
Course Code:	CHEM8017
Course Duration:	1 semester
Credit Units:	2 credits
Level:	R8
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	BCH8017 Research Methodology and Ethics
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

The overall goal of this course for research students is to develop a deeper view on the research methodology and corresponding ethics. The primary content will include research attitude, problem definition, literature search and review, quantitative and qualitative methods, presenting research materials, publication and research career. Special emphasis is given to research ethics and how to write applications for ethical approval. Students will also develop the subject of their research with critical thinking and individual judgement and obtain skills required in interpreting published results, writing research proposals, reports and dissertation in the area of chemical methods and technology.

2. Course Intended Learning Outcomes (CILOs)

No.	CILOs [#]	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes		
			A1	A2	A3
1.	Demonstrate a good understanding of the fundamentals of research attitude, methodology and tools.	20%	✓	✓	
2.	Build up a framework for a selected research topic and be able to search and comment on relevant literatures.	20%	✓	✓	
3.	Apply the research methodology and tools to develop an original and practical research proposal.	20%	✓	✓	✓
4.	Logically present their or other's research works to peers for effective communication.	20%	✓	✓	✓
5.	Evaluate ethical concerns in scientific research and explore their implications for research design and methods.	20%	✓	✓	
		100%			

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Learning and Teaching Activities (LTAs)

LTA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	Students will learn skills for literature search, research process, written and oral communication, publication, and research ethics.	✓	✓	✓	✓	✓	20 hours in total
Small group discussion/ written report	Students will participate in activities include presentation, group discussion and critique of the research design and methodology of selected scientific works.		✓	✓	✓		6 hours in total

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment: 100%							
Class discuss/Quiz	✓	✓	✓	✓	✓	30%	
Group/personal presentation		✓	✓	✓		40%	
Short essay on research design		✓	✓	✓	✓	30%	
Examination: 0 % (duration: , if applicable)						100%	

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for courses offered by CHEM:

“A minimum of 40% in both coursework and examination components.”

5. Assessment Rubrics

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Class quiz and discussion	ABILITY to understand the fundamentals of research attitude, methodology and tools and participate in relevant discussion.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Group/personal presentation	ABILITY to effectively and logically present their or other's work to fellow peers.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Short essay on research design	ABILITY to employ knowledge and skills obtained in class for critical review of literatures and proposal writing	High	Significant	Moderate	Basic	Not even reaching marginal levels

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Class quiz and discussion	ABILITY to understand the fundamentals of research attitude, methodology and tools and participate in relevant discussion.	High	Significant	Basic	Not even reaching marginal levels
2. Group/personal presentation	ABILITY to effectively and logically present their or other's work to fellow peers.	High	Significant	Basic	Not even reaching marginal levels
3. Short essay on research design	ABILITY to employ knowledge and skills obtained in class for critical review of literatures and proposal writing	High	Significant	Basic	Not even reaching marginal levels

Part III Other Information

1. Keyword Syllabus

(An indication of the key topics of the course.)

Research attitude, Research process, Defining a topic, Improving creativity, Literature search, Research management, Presenting research material, Publication, Research ethic, Preparing for a research career

2. Reading List

2.1 Compulsory Readings

1.	
2.	
3.	
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2.2 Additional Readings

1.	R. Murray, <i>How to Write a Thesis (4th edition)</i> , Open University Press, 2017.
2.	T. Greenfield, <i>Research Methods for Postgraduates (3rd edition)</i> , Wiley, 2016.
3.	S. Tak, <i>Research Methodology</i> , DND Publications, 2015.