

City University of Hong Kong
Course Syllabus

offered by Department of Biomedical Engineering
with effect from Semester A 2024/25

Part I Course Overview

Course Title: Research Methodology

Course Code: BME8009

Course Duration: To be completed normally in 1 academic year or 2 semesters

Credit Units: 2

Level: R8

Medium of Instruction: English

Medium of Assessment: English

Prerequisites:
(Course Code and Title) Nil

Precursors:
(Course Code and Title) Nil

Equivalent Courses:
(Course Code and Title) MBE8009 Research Methodology

Exclusive Courses:
(Course Code and Title) BME8002M Research Seminar

Part II Course Details

1. Abstract

This course aims to provide MPhil/PhD students with

- a. the fundamental elements of research methodology which include problem definition, literature review, quantitative and qualitative methods, research tools and research reporting;
- b. formal forums for the research students to -
 - broaden their knowledge and expertise;
 - present their research findings and discuss their learning experiences with their peers and academic staff; and
 - develop a strong research mindset and scholarship.

2. Course Intended Learning Outcomes (CILOs)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Discuss the fundamentals of research methodology and tools		✓		
2.	Formulate a research framework for the selected MPhil/PhD research topic		✓	✓	
3.	Critique relevant literature relating to the selected MPhil/PhD research topic		✓	✓	
4.	Apply the research methodology and tools in the development of the research proposal			✓	✓
5.	Communicate with fellow peers regarding their own or others' research findings and experience scholarly and logically.			✓	✓
		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	
Class Participation	Class activities are made up of lectures and research seminars from other students.	√	√	√	√		39 hours (total)
Groupwork	Group work is used as a platform for reflective and interactive learning among the students and instructors or research supervisors. Activities include presentation, group discussion and critique of fellow students' research design and methodology in general and their thesis proposals development in particular. Each student is required to submit a portfolio (as defined each semester) of brief write-ups and reflections of the research seminars attended and presented.		√	√	√		12 hours (total)
Research Seminars	Each student is required to attend a minimum of 12 hours of seminars; each student is also required to present at least once the research progress or results to peers and faculty in class.			√	√	√	22 hours (total)

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment:	√	√	√	√	√	100%	
Examination: 0%							
						100%	

- The portfolio is a collection of critiques and reflections of the research seminars attended. Students are also encouraged to include documented evidence of his/her learning from the lectures and groupwork in the portfolio.

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)
Tests	Evidence of an understanding of the fundamentals of various research topics/subjects that are broadly related to biomedical engineering and techniques that are relevant to solve problems to provide creative solutions.	High	Significant	Moderate	Basic	Not even reaching marginal levels
Groupwork	Evidence of reflective and interactive learning among the students in a group setting. Quality of presentation, group discussion, and critique of fellow students' research design and methodology in general. Quality of the submitted portfolio of brief write-ups and reflections of the research seminars attended.	High	Significant	Moderate	Basic	Not even reaching marginal levels
Research Seminar	Quality of presentation about the research progress or results, as presented to peers and faculty in class.	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)
Tests	Evidence of an understanding of the fundamentals of various research topics/subjects that are broadly related to biomedical engineering and techniques that are relevant to solve problems to provide creative solutions.	High	Significant	Basic	Not even reaching marginal levels
Groupwork	Evidence of reflective and interactive learning among the students in a group setting. Quality of presentation, group discussion, and critique of fellow students' research design and methodology in general. Quality of the submitted portfolio of brief write-ups and reflections of the research seminars attended.	High	Significant	Basic	Not even reaching marginal levels
Research Seminar	Quality of presentation about the research progress or results, as presented to peers and faculty in class.	High	Significant	Basic	Not even reaching marginal levels

Part III Other Information

1. Keyword Syllabus

Literature search, research design, research methodology, quantitative and qualitative methods, research writing and presentation, research seminars

2. Reading List

2.1 Compulsory Readings

Nil

2.2 Additional Readings

Experimental Methods for Engineers, McGraw-Hill Series in Mechanical Engineering, 8th Edition, Jack Holman.

Professional and Technical Writing/Presentations, Wikibooks: https://en.wikibooks.org/wiki/Professional_and_Technical_Writing/Presentations .

Online Resources

Online learning material is provided via the University computer network.