香港城市大學
City University of Hong Kong

City University of Hong Kong
Course Syllabus

offered by Department of Materials Science and Engineering
with effect from Semester A 2024/25

Part I Course Overview

Course Title:	Survival Skills for Research Scientists
Course Code:	MSE8001
Course Duration:	One semester
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)*	AP8001 Survival Skills for Research Scientists
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course is aimed at providing students with tailored research skills for scientific research student and prepare them for PhD study and future academic career. In details:

- 4 hours teaching for skills of writing a good research paper - how to think about writing, telling research story, logic presentation, and perspectives.
- 2 hours of teaching for presentation skills of scientific data including figure, graph, table and scheme, as well as common mistakes to avoid.
- 2 hours teaching for presentation skills for conference talk including PowerPoint preparation, time management, and answering questions.
- 2 hours teaching for skills of efficient literature search and management of bibliographies and references.
- 2 hours teaching for writing skills of abstracts for conferences and journals.
- 2 hours teaching for knowledge of research funding and how to obtain them. Explain the funding structures of US, Hong Kong and mainland China; introduce the writing skills of research proposals for Hong Kong and mainland research funds.
- 2 hours teaching for research ethics, including plagiarism, data fabrication, attribution, IP, conflict of interest, and research authorship.
- 10 hours of student presentation for a mock conference presentation, focusing on showcasing the skills of telling scientific story, data presentation, concept presentation, and answering question in a conference.

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.	Demonstrate skills in writing abstract for journal and conference papers.	25%		✓	✓
2.	Demonstrate skills in literature search and reference management.	5%		✓	✓
3.	Demonstrate skills in preparing and delivering good seminar/conference presentation.	30%	✓	✓	✓
4.	Demonstrate skills in presenting scientific data including figure, graph, table and scheme.	20%	✓	✓	✓
5.	Demonstrate skills in writing research proposal for Hong Kong and mainland funds.	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	
1.Lectures	Student will engage in lecture activities about common research skills and how to apply them in practical research activities.	✓	✓	✓	✓	✓	16/semester
2. Presentations	Student will engage in mock presentation in a conference, demonstrating skills in forming scientific logic, data presentation time management, and answering questions.		✓	✓	✓		10/semester

4. Assessment Tasks/Activities (ATs)

The assessment of the course is based entirely on coursework.

Assessment Tasks/Activities	CILO No.					Weighting *	Remarks
	1	2	3	4	5		
Continuous Assessment: 100%							
1. Assignment	✓	✓		✓	✓	60%	
2. Presentation		✓	✓	✓		40%	
Examination: 0%							
						100%	

5. Assessment Rubrics

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. Assignment 1	Writing an abstract for a conference submission	High	Moderate	Basic	Not reaching marginal level
2. Assignment 2	Writing a dummy research proposal for RGC Hong Kong	High	Moderate	Basic	Not reaching marginal level
3. Presentation	Skilful presentation of research work. This includes preparation of slides and effective presentation techniques	High	Moderate	Basic	Not reaching marginal level

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. Assignment 1	Writing an abstract for a conference submission	High	Significant	Moderate	Basic	Not reaching marginal level
2. Assignment 2	Writing a dummy research proposal for RGC Hong Kong	High	Significant	Moderate	Basic	Not reaching marginal level
3. Presentation	Skilful presentation of research work. This includes preparation of slides and effective presentation techniques	High	Significant	Moderate	Basic	Not reaching marginal level

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

- Research ethics (plagiarism, data fabrication, attribution, IP, conflict of interest, authorship)
- Preparing and delivering a conference presentation
- Writing an abstract for journal and conference paper
- Writing research proposal for General Research Fund
- Presenting Scientific data
- Writing research manuscript.

2. Reading List

2.1 Compulsory Readings

1.	Goodlad, S, 1996: Speaking Technically. Imperial College Press, 112pp.
2.	Holtom, D and E Fisher, 1999: Enjoy Writing Your Science Thesis or Dissertation! Imperial College Press, 278pp.
3.	Yang, J T, 1995: An Outline of Scientific Writing. World Scientific, 160pp.

2.2 Additional Readings

N/A