

PHY8001: SURVIVAL SKILLS FOR RESEARCH SCIENTISTS

Effective Term

Semester B 2024/25

Part I Course Overview

Course Title

Survival Skills for Research Scientists

Subject Code

PHY - Physics

Course Number

8001

Academic Unit

Physics (PHY)

College/School

College of Science (SI)

Course Duration

One Semester

Credit Units

3

Level

R8 - Research Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

AP8001 Survival Skills for Research Scientists

Exclusive Courses

Nil

Part II Course Details

Abstract

The course is designed for students enrolled in the MPhil and PhD programmes to train them in acquiring the necessary skills of practicing research scientists.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Prepare and deliver well-structured, informative, and comprehensible seminar/conference presentations.				x
2	Write concise and informative good abstracts for scientific papers and conferences.				x
3	Present scientific data.				x
4	Search the scientific literature and manage bibliographies and references.			x	
5	Write well-structured, informative, and comprehensible articles for publication in reputable journals.		x		
6	Prepare well-structured research proposals for research- grant application and research-activity planning		x	x	
7	Research ethics in Science.			x	

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 real-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.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1		Lectures	1, 2, 3, 4, 5, 6, 7	10/semester
2		Tutorials	1, 2, 3, 4, 5, 6	8/semester
3		Presentations	1, 2, 6	8/semester

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignment	2, 6	60	Examine whether students are able to write concise and informative abstracts; Examine whether students are able to write well-structured research proposals
2	Presentation	1	40	Examine whether students are able to deliver well-structured, informative, and comprehensible oral presentations;

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)**Assessment Task**

Assignment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Writing of an original research proposal following a structure similar to the RGC-GRF grant proposal, including objectives, background/introduction, methodology, research plan, Gantt chart; writing of an abstract following the structure of standard scientific publications

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not reaching marginal level

Assessment Task

Presentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Skillful presentation of research work. This includes preparation of well-structured and informative slides, delivering a scientific presentation in a professional manner

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not reaching marginal level

Assessment Task

Assignment (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Writing of an original research proposal following a structure similar to the RGC-GRF grant proposal, including objectives, background/introduction, methodology, research plan, Gantt chart; writing of an abstract following the structure of standard scientific publications

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not reaching marginal level

Assessment Task

Presentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Skillful presentation of research work. This includes preparation of well-structured and informative slides, delivering a scientific presentation in a professional manner

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not reaching marginal level

Part III Other Information**Keyword Syllabus**

- Preparing and delivering a well-structured scientific presentation
- Writing an abstract for a conference
- Preparing scientific graphs
- Searching and managing bibliographic databases
- Learning the standard paper formats in reputable journals
- Learning the standard proposal format and practicing writing it
- Understanding research ethics in science

Reading List**Compulsory Readings**

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

Additional Readings

Title	
1	N/A
2	Nil