FACULTY OF SCIENCE

Physics

Study Scheme

M.Phil.-Ph.D. Programme in Physics (Full-time and Part-time)

Please read the Study Scheme in conjunction with the email on "Completing certain Improving Postgraduate Learning modules in the first year of study (for fulfilment of Ph.D. and Taught Doctoral candidacy requirements) with retroactive effect from 2022-23 intake" dated 27 October 2023: https://www.gs.cuhk.edu.hk/download/IPL.pdf.

Applicable to students admitted in 2022-23 and thereafter

A. M.Phil. Student

1. Coursework Requirement

Total number of units required for graduation within the normative study period for:

(a) Lecture courses:

(i) Full-time students:
First to Second Year of Attendance
at PHYS5000-level **12 units**

(ii) Part-time students:
First to Third Year of Attendance
Lecture courses (at PHYS5000-level): **12 units**

(b) Thesis research/monitoring courses:

(i) Full-time students:
PHYS8006

(ii) Part-time students:
PHYS8003

2. Other Requirements

(a) Students must fulfill the Term Assessment Requirement of the Graduate School. For details, please refer to Clause 13.0 “Unsatisfactory Performance and Discontinuation of Studies” of the General Regulations Governing Postgraduate Studies which can be accessed from the Graduate School Homepage: https://www.gs.cuhk.edu.hk.

(b) Students in experimental research projects are required to take PHYS5330.

(c) Students in theoretical research projects are required to take at least 2 courses from the following list:

  (i) PHYS5410

  (ii) PHYS5420

  (iii) PHYS5430

  (iv) Either PHYS5510 or 5520 or 5540

  (v) PHYS5570

(d) Students are required to submit a research thesis and pass an oral examination for graduation.

(e) Students are required to complete an Improving Postgraduate Learning (IPL) module on “Observing Intellectual Property and Copyright Law during Research”. This is an online module and relevant information can be accessed from the website: https://www.cuhk.edu.hk/clear/prodev/ipl.html.

(f) Students are required to attend IPL modules on “General Safety”, “Biological Safety”, and/or “Chemical Safety”, and other required laboratory safety courses as prescribed by the programme/Division. Students who are prescribed laboratory safety training shall take the courses and, where appropriate, examinations in their first year of study for completion of the programme-specific requirement, with effect from the 2022-23 intake. Students should consult Division for details.

(g) Students are required to complete and pass an IPL module on “Basics of Research Data Management” in their first year of study for completion of the University-specified requirement, with effect from the 2022-23 intake. This is an online module and relevant information can be accessed from the website: https://www.cuhk.edu.hk/clear/download/IPL-Researchskills.pdf.

(h) Students are required to complete an online Research Ethics Training (RET) module on “Publication Ethics” offered by the Office of Research and Knowledge Transfer Services (ORKTS) and obtain a valid Publication Ethics Certificate for graduation. Relevant information can be accessed from the RET website at https://www.research-ethics.cuhk.edu.hk/web/.

3. Remarks

(a) Students may take at most one course in MSEG, CHEM, ELEG, CSCI, MATH at 5000-level to replace one PHYS course at 5000-level, subject to Division’s approval.

(b) Course exemptions may be granted on the basis of graduate level courses already taken.

(c) Students may take either PHYS5710 or 5720 to replace at most one PHYS lecture course at 5000-level subject to Division’s approval.

(d) Continuing students must register for PHYS8003 in each term.

B. Ph.D. Student (Pre-candidacy)

The “candidacy requirement” composes of four major parts, namely, coursework requirement, candidacy examination, thesis proposal (and oral defence) and stipulated Improving Postgraduate Learning (IPL) module requirements. Students must complete and fulfill the first three parts within the “maximum period for fulfilling candidacy requirements” and complete the stipulated IPL module(s) in their first year of study. Details of the requirement are listed below:

1. Coursework Requirement

A student with/without a research Master’s degree has to complete the followings within the normative study period:

(a) Lecture courses:

(i) Full-time students:
at PHYS5000-level **12 units**

(ii) Part-time students:
at PHYS5000-level **12 units**

(b) Thesis research/monitoring courses:

(i) Full-time students:
PHYS8006

(ii) Part-time students:
PHYS8003

2. Candidacy Examination

(a) Students are required to take a written examination by the end of the first year from first entry. A second attempt is allowed, but it must be taken before the end of the second year from first entry. If the students fail two times, they shall be required to discontinue studies in the Graduate School.
(b) Part of the written examination can be replaced by passing some 5000-level courses at good grades, subject to Division’s approval.

3. Thesis Proposal and Oral Defence

An oral presentation of the research plan, which should be passed by the end of the second year from first entry. A second attempt is allowed, but it must be taken within six months from the first attempt.

4. Other Requirements

Students are required to complete the following Improving Postgraduate Learning (IPL) modules in their first year of study for partial fulfillment of candidacy requirements:

(a) Students are required to attend IPL modules on “General Safety”, “Biological Safety”, and/or “Chemical Safety”, and other required laboratory safety courses as prescribed by the programme/Division. Students who are prescribed laboratory safety training shall take the courses and, where appropriate, examinations in their first year of study for completion of the programme-specific requirement, with effect from the 2022-23 intake. Students should consult Division for details.

(b) Students are required to complete and pass an IPL module on “Basics of Research Data Management” in the first year of study for completion of the University-specified requirement, with effect from the 2022-23 intake. This is an online module and relevant information can be accessed from the website: https://www.cuhk.edu.hk/clear/download/IPL-Researchskills.pdf.

5. Remarks

(a) Students in experimental research projects are required to take PHYS5330.
(b) Students in theoretical research projects are required to take at least 2 courses from the following list:

(i) PHYS5410
(ii) PHYS5420
(iii) PHYS5430
(iv) Either PHYS5510 or 5520 or 5540
(v) PHYS5570

(c) Students may take at most one course in MSEG, CHEM, ELEG, CSCI, MATH at 5000-level to replace one PHYS course at 5000-level, subject to Division’s approval.
(d) Students may take either PHYS5710 or 5720 to replace at most one PHYS lecture course at 5000-level subject to Division’s approval.
(e) Course exemptions may be granted on the basis of graduate level courses already taken.

C. Ph.D. Student (Post-candidacy)

1. Coursework Requirement

(a) Thesis research/monitoring courses:
(i) Full-time students:
PHYS8012

(ii) Part-time students:

PHYS8006

(b) Other course(s):
PHYS7210

2. Other Requirements

(a) Students must fulfill the Term Assessment Requirement of the Graduate School. For details, please refer to Section 13.0 “Unsatisfactory Performance and Discontinuation of Studies” of the General Regulations Governing Postgraduate Studies which can be accessed from the Graduate School Homepage: https://www.gs.cuhk.edu.hk.

(b) Continuing students must register for PHYS8003 in each term.

(c) Students are required to submit a research thesis and pass an oral examination for graduation.

(d) In addition to completing the IPL modules stipulated for partial fulfillment of candidacy requirements, students are also required to complete the following IPL modules for graduation:

Complete an IPL module on “Observing Intellectual Property and Copyright Law during Research”. This will be an online module and relevant information can be accessed from the website: https://www.cuhk.edu.hk/clear/prodev/ipl.html.

(e) Complete an online Research Ethics Training (RET) module on “Publication Ethics” offered by the Office of Research and Knowledge Transfer Services (ORKTS) and obtain a valid Publication Ethics Certificate for graduation. Relevant information can be accessed from the RET website at https://www.research-ethics.cuhk.edu.hk/web/.

Course List

Code	*Course Title*	*Unit*
MSEG5020	Frontiers in Materials Science	3
MSEG5040	Topics in Advanced Materials Research IV (Electron Microscopy: Principles, Techniques and Analysis)	3
MSEG5080	Surface Science	3
PHYS5061	From Computational Physics to Artificial Intelligence	3
PHYS5320	Photonics: Materials and Devices	3
PHYS5330	Instrumentation I	3
PHYS5350	Techniques in Materials Characterization	4
PHYS5410	Advanced Quantum Mechanics	3
PHYS5420	Classical Electrodynamics	3
PHYS5430	Solid State Theory	3
PHYS5450	Introduction to Soft Matter Physics	3
PHYS5460	Instrumentation II	3
PHYS5510	Topics in Theoretical Physics (Advanced Statistical Mechanics)	3
PHYS5520	Topics in Theoretical Physics (Introduction to Many-body Theory)	3
PHYS5530	Topics in Theoretical Physics (Introduction to Particle Physics)	3
PHYS5540	Topics in Theoretical Physics (Advanced Computational Physics)	3
PHYS5550	Topics in Theoretical Physics (Quantum Optics)	3
PHYS5560	Topics in the Frontiers of Physics	3
PHYS5561	Topics in the Frontiers of Physics (General Relativity)	3
PHYS5562	Topics in Theoretical Physics (Astrophysics)	3
PHYS5580	Physics of Quantum Information and Quantum Computation	3
PHYS5590	Modern Atomic Physics	3
PHYS5610	Introduction to Biophysics	3
PHYS5620	Topics in Experimental Physics (Thin Film Physics and Technology)	3
PHYS5660	Semiconductor Physics and Devices	3
PHYS5710	Guided Study	3
PHYS5720	Guided Study	3
PHYS5790	Guided Study	3
PHYS7210	Guided Study	1
PHYS8003	Thesis Research	3
PHYS8006	Thesis Research	6
PHYS8012	Thesis Research	12