

FACULTY OF SCIENCE

Physics

Study Scheme

Master of Science Programme in Physics (Full-time and Part-time)

Applicable to students admitted in 2025-26 and thereafter

1. *Coursework Requirement*

Students are required to complete a minimum of 24 units of Physics courses at 5000-level and above for graduation.

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) A student must achieve a cumulative grade point average (GPA) of at least 2.0 in order to fulfill the graduation requirement, unless special approval is granted by the Graduate Council.

3. *Remarks*

- (a) With the permission of the Graduate Panel, up to 3 units from courses at 4000-level and above in PHYS and/or 6 units of MSEG courses at 5000-level and above may be substituted.
- (b) No more than 12 units from PHYS5710, 5720, 5730, 5990, and 5991 will be counted towards the 24 units required for graduation.
- (c) A dissertation option is open to students upon successful arrangement with a supervisor. Students are required to spend 6 units in the form of a Guided Study or project III course (PHYS 5710, 5720, 5730 or 5990) plus PHYS 5991, to be taken either in different terms or in the same term. While the courses are to be assessed separately, they together provide the opportunity for a student to acquire the necessary background knowledge and skills of a research area, possibly carry out a project, and compose a dissertation that reflects the student's broad reading and understanding of the area. Students should make the necessary arrangement with a supervisor at the earliest time possible in their study.

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- (b) No more than 12 units from PHYS5710, 5720, 5730, 5990, and 5991 will be counted towards the 24 units required for graduation.
- (c) A dissertation option is open to students in the full-time mode upon successful arrangement with a supervisor. Students are required to spend 6 units in the form of a Guided Study course (PHYS 5710, 5720, or 5730) plus PHYS 5991, to be taken either in different terms or in the same term. While the courses are to be assessed separately, they together provide the opportunity for a student to acquire the necessary background knowledge and skills of a research area, possibly carry out a project, and compose a dissertation that reflects the student's broad reading and understanding of the area. Students should make the necessary arrangement with a supervisor at the earliest time possible in their study. Students in the part-time mode who want to opt for a dissertation should seek prior approval from the Graduate Panel after they make arrangement with a supervisor.

Course List

| <u>Code</u> | <u>Course Title</u> | <u>Unit</u> |
|-------------|--|-------------|
| 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 |
| PHYS5110 | Fundamentals of Classical Mechanics and Special Relativity | 3 |

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| PHYS5120 | Fundamentals of Modern Quantum Mechanics | 3 |
| PHYS5130 | Principles of Thermal and Statistical Physics | 3 |
| PHYS5140 | Classical Electromagnetic Theory | 3 |
| PHYS5160 | Computational Physics | 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 |
| 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 |
| PHYS5730 | Guided Study | 3 |
| PHYS5790 | Guided Study | 3 |
| PHYS5990 | Project III | 3 |
| PHYS5991 | MSc Dissertation | 3 |