FACULTY OF SCIENCE

Materials Science and Engineering

Study Scheme

M.Phil.-Ph.D. Programme in Materials Science and Engineering (Full-time and Part-time)

Please read the Study Scheme in conjunction with the following emails:

1. "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.

2. "Amendments to Research Data Management Practice and Requirements for Candidacy and Graduation -- applicable to RPg and taught doctoral students admitted in 2025/26 or thereafter", dated 20 February 2026: https://www.gs.cuhk.edu.hk/download/Amendments.pdf.

Applicable to students admitted in 2026-27 and thereafter

A. M.Phil. Student

1. Coursework Requirement

(a) Lecture courses:

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

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:
MSEG8003

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 are required to submit a research thesis and pass an oral examination for graduation.

(c) 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.

(d) Students as advised by their supervisors or Graduate Divisions to take laboratory safety courses, including "General Safety" (excluding the Animal Experimentation at CUHK), are required to attend the course(s) and pass the corresponding examination(s) in their first year of study, with effect from the 2022-23 intake.

(e) Students are required to complete and pass an IPL module on "Basics of Research Data Management" in their first year of study, 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/prodev/ipl.html (under "Research Skills").

(f) Students are required to submit a Data Management Plan (DMP) during the first year of study, with effect from the 2025-26 intake. The final DMP should have been shared to the CUHK community on DMPTool or the relevant platform that CUHK provides when submitting the final version of the thesis/portfolio to the Graduate School. The guide is available on Library's website: https://libguides.lib.cuhk.edu.hk/rdm/mandate-support.

(g) Students are required to complete an online Research Ethics Training (RET) module on "Publication Ethics" offered by the Research Office (RO) 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) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

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

(d) Continuing students must register for MSEG8003 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 MSEG or PHYS5000-level **12 units**

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:
MSEG8003

(c) Other course(s):
MSEG7210

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 as advised by their supervisors or Graduate Divisions to take laboratory safety courses, including "General Safety" (excluding the Animal Experimentation at CUHK), are required to attend the course(s) and pass the corresponding examination(s) in their first year of study, with effect from the 2022-23 intake.

(b) Students are required to complete and pass an IPL module on "Basics of Research Data Management" in their first year of study, 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/prodev/ipl.html (under "Research Skills").

(c) Students are required to submit a Data Management Plan (DMP), with effect from the 2025-26 intake. The guide is available on Library's website: https://libguides.lib.cuhk.edu.hk/rdm/mandate-support.

5. Remarks

(a) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

(c) 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:
MSEG8012

(ii) Part-time students:
MSEG8006

(b) Other course(s):
MSEG7210

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) Continuing students must register for MSEG8003 in each term.

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

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:

(d) Complete an 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.

(e) Complete an online Research Ethics Training (RET) module on “Publication Ethics” offered by the Research Office (RO) 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/.

(f) The final DMP should have been shared to the CUHK community on DMPTool or the relevant platform that CUHK provides when submitting the final version of the thesis/portfolio to the Graduate School. The guide is available on Library’s website: https://libguides.lib.cuhk.edu.hk/rdm/mandate-support.

Applicable to students admitted in 2025-26

A. M.Phil. Student

1. Coursework Requirement

(a) Lecture courses:

(i) Full-time students:

First to Second Year of Attendance
at MSEG or PHYS5000-level **12 units**

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:
MSEG8003

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 are required to submit a research thesis and pass an oral examination for graduation.

(c) 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.

(d) Students as advised by their supervisors or Graduate Divisions to take laboratory safety courses, including "General Safety" (excluding the Animal Experimentation at CUHK), are required to attend the course(s) and pass the corresponding examination(s) in their first year of study, with effect from the 2022-23 intake.

(e) Students are required to complete and pass an IPL module on "Basics of Research Data Management" in their first year of study, 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.

(f) Students are required to submit a Data Management Plan (DMP) during the first year of study, with effect from the 2025-26 intake. The final DMP should have been shared to the CUHK community on DMPTool or the relevant platform that CUHK provides when submitting the final version of the thesis/portfolio to the Graduate School. Students are required to have published the data on the CUHK Research Data Repository or an open data repository with a valid Digital Object Identifier (DOI) or other forms of permanent identifier when submitting the final version of the thesis/portfolio. Upon thesis supervisor's endorsement, students can decide on how much data from the research project is to be published.

(g) 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) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

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

(d) Continuing students must register for MSEG8003 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 MSEG or PHYS5000-level **12 units**

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:
MSEG8003

(c) Other course(s):
MSEG7210

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 as advised by their supervisors or Graduate Divisions to take laboratory safety courses, including "General Safety" (excluding the Animal Experimentation at CUHK), are required to attend the course(s) and pass the corresponding examination(s) in their first year of study, with effect from the 2022-23 intake.

(b) Students are required to complete and pass an IPL module on "Basics of Research Data Management" in their first year of study, 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.

(c) Students are required to submit a Data Management Plan (DMP), with effect from the 2025-26 intake.

5. Remarks

(a) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

(c) 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:
MSEG8012

(ii) Part-time students:
MSEG8006

(b) Other course(s):
MSEG7210

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) Continuing students must register for MSEG8003 in each term.

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

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:

(d) Complete an 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.

(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/.

(f) The final DMP should have been shared to the CUHK community on DMPTool or the relevant platform that CUHK provides when submitting the final version of the thesis/portfolio to the Graduate School. Students are required to have published the data on the CUHK Research Data Repository or an open data repository with a valid Digital Object Identifier (DOI) or other forms of permanent identifier when submitting the final version of the thesis/portfolio. Upon thesis supervisor’s endorsement, students can decide on how much data from the research project is to be published.

Applicable to students admitted in 2022-23 to 2024-25

A. M.Phil. Student

1. Coursework Requirement

(a) Lecture courses:

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

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:
MSEG8003

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 are required to submit a research thesis and pass an oral examination for graduation.

(c) 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.

(d) 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.

(e) Students are required to complete and pass an IPL module on “Basics of Research Data Management” in their first year of study, 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.

(f) 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) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

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

(d) Continuing students must register for MSEG8003 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 MSEG or PHYS5000-level **12 units**

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

(b) Thesis research/monitoring courses:

(i) Full-time students:
MSEG8006

(ii) Part-time students:

MSEG8003

(c) Other course(s):

MSEG7210

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 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.

5. Remarks

(a) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

(c) 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:

MSEG8012

(ii) Part-time students:
MSEG8006

(b) Other course(s):
MSEG7210

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) Continuing students must register for MSEG8003 in each term.

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

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:

(d) Complete an 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.

(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/.

Applicable to students admitted in 2020-21 to 2021-22

A. M.Phil. Student

1. Coursework Requirement

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

(i) Full-time students:

First to Second Year of Attendance	
MSEG8006 in each term	**24 units**
Lecture courses (at MSEG or PHYS5000-level)	**12 units**
	Total: 36 units

(ii) Part-time students:

First to Third Year of Attendance	
MSEG8003 in each term:	**18 units**
Lecture courses (at MSEG or PHYS5000-level):	**12 units**
	Total: 30 units

(b) Thesis research/monitoring courses:
MSEG8003, 8006

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

(c) Complete an Improving Postgraduate Learning (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.

(d) Students are also required to attend IPL modules on “General Safety”, “Biological Safety”, and “Chemical Safety” courses, and other required laboratory safety courses, depending on the nature of the research project. Students should consult Division for details.

(e) 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) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

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

(d) Continuing students must register for MSEG8003 in each term.

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

The “candidacy requirement” composes of three major parts, namely coursework requirement, candidacy examination, and thesis proposal (and oral defence). Students must complete and fulfill all three parts within the “maximum period for fulfilling candidacy requirements”. Details of the requirement are listed below:

1. Coursework Requirement

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

(i) Full-time students:
MSEG8006 and 7210 in each term
A minimum of 12 units from lecture courses at MSEG or PHYS5000-level.

(ii) Part-time students:
MSEG8003 and 7210 in each term

A minimum of 12 units from lecture courses at MSEG or PHYS5000-level.

(b) Thesis research/monitoring courses:
MSEG8003, 8006

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. Remarks

(a) With the permission of the supervisor(s), up to two lecture courses can be chosen from courses in CHEM, ELEG, ACEG at 5000-level to replace two MSEG or PHYS5000 courses.

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

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

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

1. Coursework Requirement

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

(i) Full-time students:
MSEG8012 and 7210 in each term

(ii) Part-time students:
MSEG8006 and 7210 in each term

(b) Thesis research/monitoring courses:
MSEG8003, 8006, 8012

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 MSEG8003 in each term.

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

(d) Complete an Improving Postgraduate Learning (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) Students are also required to attend IPL modules on "General Safety", "Biological Safety", and "Chemical Safety" courses, and other required laboratory safety courses, depending on the nature of the research project. Students should consult Division for details.

(f) 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/.

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
MSEG7210	Guided Study	1
MSEG8003	Thesis Research	3
MSEG8006	Thesis Research	6
MSEG8012	Thesis Research	12
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

Study Scheme

Learning Outcomes

1. Our research programmes aim to educate researchers to embark on careers that would allow them to become world leaders in their fields, working as university professors, principal investigators in research institutes, senior managers in enterprises, or experts in other professions related to the pursuit and application of knowledge.

2. The University expects **doctoral degree graduates** of research programmes to have acquired in-depth knowledge in a number of major areas of an academic discipline while maintaining a broad understanding of other related fields. Doctoral degree graduates should have accumulated enough educational experience and background learning to be capable of performing independent research to advance scholarship, with global standards. In particular, doctoral graduates should have the ability to identify research trends and opportunities, venture into new research areas when appropriate, define long-term research objectives, formulate original research problems, and originate and develop solution methodologies. Doctoral graduates should be capable of producing research output at a level that can either lead to publications in high-ranking scholastic venues, or to novel applications in relevant industrial, commercial, or other public sectors, or to other forms of useful knowledge transfer to society. They should have gained proficiency in techniques of knowledge dissemination through presentation and writing and some teaching experiences through student tutoring.

3. The University expects **master's degree graduates** of research programmes to have acquired advanced knowledge in major areas of an academic discipline while maintaining a broad understanding of other related fields. Master's degree graduates should have gained enough background knowledge to enable them to perform research with minimal supervision. In particular, they should have the ability to formulate individual research tasks and to develop solution methodologies under minimal supervision. Master's degree graduates should be capable of producing original, innovative research output, some of which may lead to publication in well-respected scholastic venues. They should have gained proficiency in techniques of knowledge dissemination through presentation and writing.

4. For graduates of research programmes at both doctoral and master's level, communication and language skills at a level appropriate to university graduates are expected already at the time of admission. In particular, fluent communication skills are expected in the language(s) essential to their research areas. In general, a high level of proficiency in English is expected as it is commonly regarded as the default international research language. Ability in a second language is encouraged.