

Study Plan of MPhil - PhD Programme

Programme Title: MPhil-PhD in Mathematics

Offered by: School of Science and Engineering

1. Target Participants

The programme is designed for students who wish to pursue a higher degree in the broad area of mathematics and mathematical sciences, with a research focusing on pure mathematics, applied mathematics, and financial mathematics. The programme aims to strengthen students' knowledge in mathematics and train them to carry out original research independently and innovatively. An applicant with a research master's degree should apply for admission to the PhD Stream, while an applicant with a bachelor's degree can apply for admission to either MPhil or PhD Stream. Applicants should have education background in mathematics and mathematical sciences.

2. Programme Information

Study Mode: Full Time

Study Period: The study period for students of different streams / stages under the framework of the new MPhil-PhD Programmes are summarized below:

Degree	Mode	Maximum Pre-Candidacy Period ¹	Normative Period	Maximum Period
MPhil	FT	--	24 months	48 months
PhD (entering with a research master's degree)	FT	24 months	48 months	72 months
PhD (entering without a research master's degree)	FT	36 months	60 months	84 months

1 Maximum period to pass the candidacy requirement, counted from first entry.

Requirement for MPhil Students

1. Course requirement

MPhil students within Normative Study Period	Lecture Courses	3 units × 6 courses = 18 units
	Thesis Research Courses -MAT8990 Thesis Research-	6 units × 4 terms = 24 units
	Other Course -MAT8900 Mathematics Seminars-	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
MPhil Students Exceeding Normative Study Period	Thesis Research Courses -MAT8990 Thesis Research-	6 units × 4 terms = 24 units
	Other Course -MAT8900 Mathematics Seminars-	0 units × 4 terms = 0 units

1.1 Lecture Courses

1.1.1 Course Requirement

- A minimum of **18** units of courses at postgraduate level are required.
- Subject to approval of programme committee, up to two courses (6 units) may be taken outside the mathematics programme to fulfill the course requirement.
- The minimum grade requirement for all the lecture courses is “C”.
- The course list is in the appendix.

1.1.2 Course Exemption

Students can submit the prescribed application form with any required supporting documents and apply for exemption of up to two courses (**6** units). The application should be approved by the Dean of the Graduate School after the endorsement of the Programme Coordinator and the Graduate Panel Chair.

1.2 Thesis Research Courses

Students **MUST** register for thesis research courses in each term, and submit a research progress report in March and September every year respectively. The minimum requirement is listed below.

Course code	Course Title	Units	Contact Hours	Minimum Grade
MAT8990	Thesis Research	6	84	B-

A student is required to meet with his/her supervisor regularly who provides necessary guidance and supervision on the student's thesis research and monitors his/her academic progress. The minimum grade requirement of this course is “B-”.

1.3 Other Course

Course code	Course Title	Units	Contact Hours	Minimum Grade
MAT8900	Mathematics Seminars	0	--	Pass

Each student is required to do at least one presentation in each academic year. Each student is required to attend at least 4 research seminars per semester at School or University levels, with her/his own presentation counted.

1.4 Civic Education

Please refer to the official notice from HSS.

2. Progress towards Graduation

Please refer to 5. Progress towards Graduation in Code of Practice.

3. Other Information

Code of Practice Research Postgraduate Studies refers to <https://gs.cuhk.edu.cn/RPG>

Requirement for PhD Students

1. Course Requirement

PhD candidates have to complete a minimum number of units of Lecture courses and Thesis research courses, during the pre-candidacy and post-candidacy stage. However, since the study period of the students may vary, the total number of Thesis research courses to be taken may also vary, which will affect the total number of units taken by each student for graduation.

For PhD students **with** a research master's degree, total number of units required for graduation within normative study period is:

Pre-candidacy Stage (2 years)	Lecture Courses	3 units × 9 courses = 27 units
	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	6 units × 4 terms = 24 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
PhD Students Exceeding Normative Study Period (2 years)	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 4 terms = 0 units

For PhD students **without** a research master's degree, total number of units required for graduation within normative study period is:

Pre-candidacy Stage (3 years)	Lecture Courses	3 units × 9 courses = 27 units
	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	6 units × 6 terms = 36 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 6 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
PhD Students Exceeding Normative Study Period (2 years)	Thesis Research Courses <i>-MAT8990 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-MAT8901 Mathematics Seminars-</i>	0 units × 4 terms = 0 units

1.1 Lecture Courses

1.1.1 Course Requirement

- A minimum of 27 units of courses at postgraduate level are required.
- Subject to approval of programme committee, up to three courses (9 units) may be taken outside the mathematics programme to fulfill the course requirement.
- The minimum grade requirement for all the lecture courses is “C”.
- The course list is in the appendix.

1.1.2 Course Exemption

Students can submit undergraduate and postgraduate transcripts and apply for exemption of up to three courses (9 units). The courses and units to be waived must be approved by the programme committee and the graduate panel.

1.2 Thesis Research Courses

For PhD students at pre-candidacy stage and candidacy stage, students **MUST** register for thesis research courses that have 6 units and 12 units respectively in each term and submit a research progress report in March and September every year respectively. The minimum requirement is listed below.

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	MAT8990 Thesis Research	6	84	B-
Candidacy Stage	MAT8990 Thesis Research	12	168	B-
Exceeding Normative Study Period	MAT8990 Thesis Research	12	168	B-

A student is required to meet with his/her supervisor regularly who provides necessary guidance and supervision on the student's thesis research and monitors his/her academic progress. The minimum grade requirement of this course is “B-”.

1.3 Other Course

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	MAT8901 Mathematics Seminars	0	--	Pass
Candidacy Stage	MAT8901 Mathematics Seminars	0	--	Pass
Exceeding Normative Study Period	MAT8901 Mathematics Seminars	0	--	Pass

Each student is required to do at least one presentation in each academic year. Each student is required to attend at least 8 research seminars per semester at School or University levels, with her/his own presentation counted.

1.4 Civic Education

Please refer to the official notice from HSS.

2. Candidacy Examination

Each PhD student will have to attend a candidacy examination before the end of the maximum pre-candidacy period. Candidacy examination will be comprehensive and rigorous, including two parts:

Part I - A comprehensive written examination.

Part II - Thesis proposal and oral defence of the thesis proposal.

A student must pass both parts of the Candidacy Examination. The examination should be passed by the end of 24 months from the first entry for students with research master's degree or 36 months from the first entry for students without research master's degree.

The Candidacy Examination Policy of MAT refers to:

[MAT Implementation Guidelines for Candidacy Examination.pdf \(cuhk.edu.cn\)](https://www.cuhk.edu.cn/mat/implementation-guidelines-for-candidacy-examination.pdf)

3. Progress towards Graduation

Please refer to 5. Progress towards Graduation in Code of Practice.

4. Other Information

Code of Practice Research Postgraduate Studies refers to <https://gs.cuhk.edu.cn/RPG>

Appendix

Required Courses:

Course code	Course Title	Units	Contact Hours	Minimum Grade
MAT5110	Measure Theory and Integration	3	42	C
MAT5120	Functional Analysis	3	42	C
MAT5130	Complex Function Theory	3	42	C
MAT5140	Ordinary Differential Equations and Dynamical Systems	3	42	C
MAT5210	Advanced Abstract Algebra I	3	42	C
MAT5320	Riemannian Geometry	3	42	C
MAT5620	Methods of Applied Mathematics	3	42	C
MAT6110	Partial Differential Equations I	3	42	C
MAT6115	Partial Differential Equations II	3	42	C
MAT6210	Lie Algebras and their Representations	3	42	C
MAT6220	Advanced Abstract Algebra II	3	42	C
MAT6230	Lie Groups and Lie Algebras	3	42	C
MAT6240	Lie Groups and their Representations	3	42	C
MAT6310	Differential Topology	3	42	C
MAT6330	Algebraic Topology	3	42	C

MAT6340	Algebraic Geometry	3	42	C
MAT6610	Advanced Numerical Methods	3	42	C
MAT6710	Advanced Probability Theory and Mathematical Statistics	3	42	C
MAT6810	Advanced Financial Models	3	42	C
MAT7110	Topics in Analysis	3	42	C
MAT7120	Topics in Partial Differential Equations	3	42	C
MAT7210	Topics in Algebra	3	42	C
MAT7220	Topics in Representation Theory	3	42	C
MAT7310	Topics in Differential Geometry and Topology	3	42	C
MAT7610	Topics in Applied Mathematics	3	42	C
MAT7620	Topics in Scientific Computing	3	42	C
MAT7710	Topics in Financial Mathematics	3	42	C
MFE5150	Financial Data Analysis	3	42	C
MFE5200	Computational Methods in Financial Engineering	3	42	C