MASTER OF SCIENCE IN

TEACHING OF MATHEMATICS

COURSEWORK

**ACADEMIC SESSION
2025/2026**

Master of Science in Teaching of Mathematics

Academic Session 2025/2026

School of Mathematical Sciences

CONTENTS

ACADEMIC CALENDAR - ACADEMIC SESSION 2025/2026

i. New Coursework/Mixed/Online mode students' registration for Semester 1, 2025/2026 (October 2025) can be completed via online process from 1 September 2025 - 6 October 2025.
ii. New Coursework/Mixed/Online mode students' registration for Semester 2, 2025/2026 (March 2026) can be completed via online process from 2 February 2026 - 16 March 2026.
iii. New Research mode students' registration can be completed anytime.

SEM	WEEKS	ACTIVITY		DATE	REMARKS
ONE	1	Teaching & Learning (T&L & 7 Weeks)		Monday, 06.10.2025 - Sunday, 12.10.2025	
	2			Monday, 13.10.2025 - Sunday, 19.10.2025	
	3			Monday, 20.10.2025 - Sunday, 26.10.2025	20.10.2025, Monday - Deepavali**
	4			Monday, 27.10.2025 - Sunday, 02.11.2025	
	5			Monday, 03.11.2025 - Sunday, 09.11.2025	
	6			Monday, 10.11.2025 - Sunday, 16.11.2025	
	7			Monday, 17.11.2025 - Sunday, 23.11.2025	
	8	Mid Semester Break (1 Week)		Monday, 24.11.2025 - Sunday, 30.11.2025	
	9	Teaching & Learning (T&L & 7 Weeks)		Monday, 01.12.2025 - Sunday, 07.12.2025	
	10			Monday, 08.12.2025 - Sunday, 14.12.2025	
	11			Monday, 15.12.2025 - Sunday, 21.12.2025	
	12			Monday, 22.12.2025 - Sunday, 28.12.2025	25.12.2025, Thursday - Christmas Day
	13			Monday, 29.12.2025 - Sunday, 04.01.2026	01.01.2026, Thursday - New Year of 2025
	14			Monday, 05.01.2026 - Sunday, 11.01.2026	
	15			Monday, 12.01.2026 - Sunday, 18.01.2026	
	16	Revision Week (1 Week)		Monday, 19.01.2026 - Sunday, 25.01.2026	
	17	Examination (3 Weeks)		Monday, 26.01.2026 - Sunday, 01.02.2026	01.02.2026, Sunday - Thaipusam
	18			Monday, 02.02.2026 - Sunday, 08.02.2026	02.02.2026, Sunday - Replacement leave for Thaipusam (Main & Engineering Campus)
	19			Monday, 09.02.2026 - Sunday, 15.02.2026	
	20	Mid Semester Break / Industrial Training (4 Weeks)		Monday, 16.02.2026 - Sunday, 22.02.2026	17 & 18.02.2026, Tuesday & Wednesday - Chinese New Year 19.02.2026, Thursday - 1st day of Ramadhan
	21			Monday, 23.02.2026 - Sunday, 01.03.2026	
	22			Monday, 02.03.2026 - Sunday, 08.03.2026	07.03.2026, Saturday - Nuzul Al-Quran
	23			Monday, 09.03.2026 - Sunday, 15.03.2026	
TWO	24/1	Teaching & Learning (T&L & 7 Weeks)		Monday, 16.03.2026 - Sunday, 22.03.2026	21.03.2026 & 22.03.2026, Saturday & Sunday - Eid al-Fitr**
	25/2			Monday, 23.03.2026 - Sunday, 29.03.2026	23.03.2026, Monday - Replacement leave for Eid al-Fitr****
	26/3			Monday, 30.03.2026 - Sunday, 05.04.2026	
	27/4			Monday, 06.04.2026 - Sunday, 12.04.2026	
	28/5			Monday, 13.04.2026 - Sunday, 19.04.2026	
	29/6			Monday, 20.04.2026 - Sunday, 26.04.2026	
	30/7			Monday, 27.04.2026 - Sunday, 03.05.2026	01.05.2026, Friday - Labour Day
	31/8	Mid Semester Break (1 Weeks)		Monday, 04.05.2026 - Sunday, 10.05.2026	
	32/9	Teaching & Learning (T&L & 7 Weeks)		Monday, 11.05.2026 - Sunday, 17.05.2026	
	33/10			Monday, 18.05.2026 - Sunday, 24.05.2026	
	34/11			Monday, 25.05.2026 - Sunday, 31.05.2026	27 & 28.05.2026, Wednesday & Thursday - Eid al-Adha** 31.05.2026, Sunday - Wesak Day
	35/12			Monday, 01.06.2026 - Sunday, 07.06.2026	01.06.2026, Monday - Replacement leave for Wesak Day (Main & Engineering Campus) 01.06.2026, Monday - Yang di-Pertuan Agong's Birthday
	36/13			Monday, 08.06.2026 - Sunday, 14.06.2026	
	37/14			Monday, 15.06.2026 - Sunday, 21.06.2026	17.06.2026, Wednesday - Awal Muharram
	38/15			Monday, 22.06.2026 - Sunday, 28.06.2026	
	39/16	Revision Weeks (1 Week)		Monday, 29.06.2026 - Sunday, 05.07.2026	
	40/17	**Examination (2 Weeks)	Examination (3 Weeks)	Monday, 06.07.2026 - Sunday, 12.07.2026	07.07.2026, Tuesday - Georgetown World Heritage City Day 11.07.2026, Saturday - Penang Governor's Birthday
	41/18			Monday, 13.07.2026 - Sunday, 19.07.2026	
	42/19			Monday, 20.07.2026 - Sunday, 26.07.2026	
COURSES DURING LONG BREAK / SEMESTER BREAK	43/20	Long Semester Break / Industrial Training (10/11 Weeks)		Monday, 27.07.2026 - Sunday, 02.08.2026	
	44/21			Monday, 03.08.2026 - Sunday, 09.08.2026	
	45/22			Monday, 10.08.2026 - Sunday, 16.08.2026	
	46/23			Monday, 17.08.2026 - Sunday, 23.08.2026	
	47/24		*T&L	Monday, 24.08.2026 - Sunday, 30.08.2026	25.08.2026, Tuesday - Maulidur Rasul
	48/25			Monday, 31.08.2026 - Sunday, 06.09.2026	31.08.2026, Monday - National Day
	49/26		Examination	Monday, 07.09.2026 - Sunday, 13.09.2026	
	50/27			Monday, 14.09.2026 - Sunday, 20.09.2026	16.09.2026, Wednesday - Malaysia Day
	51/28			Monday, 21.09.2026 - Sunday, 27.09.2026	29 & 30.09.2026, Tuesday & Wednesday - Sultan of Kelantan's Birthday (Health Campus)
	52/29			Monday, 28.09.2026 - Sunday, 04.10.2026	

IMPORTANT DATES FOR FULL-TIME CANDIDATES
MGM599/8 PROJECT COURSE

ACADEMIC SESSION 2025/2026

Candidates submit the **Supervisor Agreement Form for Project** signed by their supervisor to the General Office of the School of Mathematical Sciences by the 1st week of Semester 1/Semester 2

Candidates must register for MGM599 in Semester 1/Semester 2

The deadline for candidates to submit their project for examination is **on or before the 15th /43rd** week of the Academic Calendar.

The seminar and viva voce will be held in the **17th/ 45th week** of the Academic Calendar.

IMPORTANT DATES FOR PART-TIME CANDIDATES
MGM599/8 PROJECT COURSE

ACADEMIC SESSION 2025/2026

Candidates submit the **Supervisor Agreement Form for Project** signed by their supervisor to the General Office of the School of Mathematical Sciences by the 1st week of Semester 1

Candidates must register for MGM599 in Semester 1

The deadline for candidates to submit their project for examination is **on or before the 43rd** week of the Academic Calendar.

The seminar and viva voce will be held in the **45th week** of the Academic Calendar.

MASTER OF SCIENCE IN TEACHING OF MATHEMATICS

A. **OBJECTIVES**

The objectives of the programme are to increase teachers' expertise in teaching mathematics courses at the pre-university level and to nurture research activities among teachers.

Objectives of the Programme:

In line with the mission of the School of Mathematical Sciences (PPSM), the Master of Science in Teaching of Mathematics programme offers high-quality mathematics courses with the aim of:

PEO 1	:	Demonstrate mastery of knowledge, and adept in problem solving, digital skills and numeracy skills in teaching of mathematics. (PO1, PO3, PO10, PO11)
PEO 2	:	Capable to solve mathematical problems independently and collaboratively by integrating advanced tools and techniques (PO2, PO5, PO7)
PEO3	:	Exhibit exemplary leadership, proficient organizational skill, effective communication and good ethics in professional and personal enhancement. (PO4, PO6, PO8, PO9)

Programme Learning Outcomes:

PLO 1	:	Evaluate and explain advanced knowledge in mathematics
PLO 2	:	Formulate solution to complex problems by using logical reasoning, critical thinking and scientific skills
PLO 3	:	Perform suitable techniques and skills using mathematical and statistical tools to solve problems
PLO 4	:	Display effective social skills and teamwork in matters related to assignments and research
PLO 5	:	Practise effective and efficient communication in both oral and written form
PLO 6	:	Solve mathematical problems by constructing appropriate solution using digital tools
PLO 7	:	Construct appropriate mathematical approaches in providing precise and accurate computational solutions
PLO 8	:	Display responsibility and exemplary leadership in individual and group work
PLO 9	:	Adapt with current skills of lifelong learning for continuous self–improvement
PLO 10	:	Integrate innovative approach in organising tasks and research activities
PLO 11	:	Practise good ethics and professionalism at all times

B.   PROGRAMME STRUCTURE

Coursework students must comply with the following programme structure and graduation requirements:

- •   Pass all courses, research project and obtain at least a C+ grade; and
- •   Achieve at least a CGPA of 3.00; and
- •   Fulfill the minimum duration of candidature; and
- •   The Bahasa Malaysia 1 (LKM111) is compulsory for all international students.
            A minimum grade of C must be obtained prior to graduation.

Candidates are also required to participate in seminars organized by the School of Mathematical Sciences from time to time.

The programme is offered either on a full-time or part-time basis. The minimum period for full-time candidates is 3 semesters (18 months) and a maximum period of 4 semesters (24 months). For part-time candidates, the minimum period is 5 semesters (30 months) and a maximum period of 8 semesters (48 months).

C.   COURSES

Compulsory (32 units):

MGM502/4	:	Number Theory *(Teori Nombor)*
MGM511/4	:	Linear Algebra *(Aljabar Linear)*
MGM531/4	:	Euclidean Geometry *(Geometri Euklidan)*
MGM551/4	:	Operations Research *(Penyelidikan Operasi)*
MGM561/4	:	Statistical Methods for Research *(Kaedah Statistik untuk Penyelidikan)*
MGM562/4	:	Probability Theory *(Teori Kebarangkalian)*
MGM599/8	:	Project *(Projek)*

Electives (11 or 12 units, choose 3 courses):

MGM501/4	:	Analysis *(Analisis)*
MGM503/4	:	Combinatorics *(Kombinatorik)*
MGM563/4	:	Statistical Inference *(Pentaabiran Statistik)*
MGM581/4	:	Mathematics and Technology *(Matematik dan Teknologi)*
PMC561/3	:	Theories of Teaching and Learning Mathematics *(Teori Pengajaran dan Pembelajaran dalam Matemati*

Note:

- Compulsory courses (with the exception of MGM599/8) are offered in every three semesters.
- Elective courses (with the exception of PMC561/3) are offered in every four semesters. (Please refer to the following Table of Course Offering in planning your courses).

TABLE OF COURSE OFFERING
(Commencing on 2 Academic Session)

	SEMESTER 1		SEMESTER 2	
	Compulsory	**Elective**	**Compulsory**	**Elective**
2025/2026	MGM511/4	MGM581/4	MGM531/4	MGM563/4
	MGM562/4	PMC561/3	MGM551/4	
	MGM599/8		MGM599/8	
	Compulsory	**Elective**	**Compulsory**	**Elective**
2026/2027	MGM502/4	MGM 503/4	MGM 511/4	MGM501/4
	MGM561/4	PMC 561/3	MGM 562/4	
	MGM599/8		MGM 599/8	
	Compulsory	**Elective**	**Compulsory**	**Elective**
2027/2028	MGM531/4	MGM581/4	MGM5024	MGM563/4
	MGM551/4	PMC561/3	MGM561/4	
	MGM599/8		MGM599/8	
	Compulsory	**Elective**	**Compulsory**	**Elective**
2028/2029	MGM511/4	MGM503/4	MGM531/4	MGM501/4
	MGM562/4	PMC561/3	MGM551/4	
	MGM599/8		MGM599/8	

NOTE: Apart from MGM599/8, part-time candidates are advised to take 1 compulsory and 1 elective courses in each semester. Apart from MGM599/8 and PMC561/3, full-time candidates are advised to take all courses being offered in each semester. Candidates must register at least 1 course every semester to maintain his/her candidacy. Candidates must request for a postponement if he/she could not register for any course in a particular semester. Candidates are advised not to take more than 16 units of courses in any semester.

REGISTERING FOR PROJECT (MGM599/8)

Part-time students who begin the Master of Science in Teaching of Mathematics programme in the 1st semester will normally register for MGM599/8 in their 2nd academic year after they have accumulated 12 units (minimum C+) whereas those who begin the programme in the 2nd semester may/may not be able to register for MGM599/8 in the following academic year (since part-time students are advised to take only 8 units of courses per semester). Full-time students who begin the Master of Science in Teaching of Mathematics programme in the 1st semester can choose to register for MGM599/8 in the 2nd Semester

of their 1st academic year to achieve a minimum period of candidature; however, this requires them to obtain a supervisor during their 1st semester in the programme. Full-time students who begin the Master of Science in Teaching of Mathematics programme in the 2nd Semester shall register for MGM599/8 in the following academic year and they can choose either to register in the 1st Semester or 2nd Semester. Please refer to the synopsis of the course.

SYNOPSIS OF COMPULSORY COURSES

1.0   MGM502/4   Number Theory *(Teori Nombor)*

Number Theory is the branch of mathematics that studies the structure and nature of numbers and the relationships among them. This course covers the important basics and major concepts such as divisibility, prime number theories, congruences and primitive roots. The use of number theory in cryptography systems will also be discussed in this course.

2.0   MGM511/4   Linear Algebra *(Aljabar Linear)*

This course emphasizes and critically review the concepts of matrix algebra, system of linear equations, real vector spaces, inner product and inner product space and linear transformations..

3.0   MGM531/4   Euclidean Geometry *(Geometri Euclid)*

This is an introductory course to Euclidean geometry and transformational geometry. Euclidean geometry will be approached through the Euclid's axioms and problem solving   techniques. It is intended to familiarize the students with the study of points and lines that are invariant under isometries and similarities, as well as many other topics. The properties of Euclidean transformation will also be discussed

4.0   MGM551/4   Operations Research *(Penyelidikan Operasi)*

This course introduces the field of Operations Research. Basic models and their applications are detailed.
Solving methods for some Operations Research problems are taught.

5.0   MGM561/4   Statistical Methods for Research
**   *(Kaedah Statistik untuk Penyelidikan)***

This course gives a mathematical approach to probability theory. Students are exposed to important concepts in probability theory such as events, independent and exclusive events, Bayes' Theorem, conditional probability, random variable, expectation, variance, moment generating function, Chebyshev's inequality, multivariate variables dan their properties.

6.0   MGM562/4   Probability Theory *(Teori Kebarangkalian)*

This course gives a mathematical approach to probability theory. Students are exposed to important concepts in probability theory such as events, independent and exclusive events, Bayes' Theorem, conditional probability, random variable, expectation, variance, moment generating function, Chebyshev's inequality, multivariate variables dan their properties.

7.0   MGM599/8   Project *(Projek)*

Student will run a project under the supervision of an academic staff. Via the project, the student is able to increase the knowledge in certain topic in mathematics and also enhance his/her skill in reading, talking and writing mathematics.

PART-TIME STUDENTS

Students must:

1. Submit the Supervisor Confirmation Form no later than the 1st week of the 2nd semester's Final Exam.
2. Register for the course in the 1st semester of the following Academic Year (students will obtain an incomplete grade in their academic transcript).
3. Submit the report in Aug/Sept towards the end of the 2nd Semester (of the same academic year) and complete the seminar and viva voce requirement (date will be announced to the student)
4. Grade will be announced after KSCP (*Kursus Semasa Cuti Panjang*).

FULL-TIME STUDENTS (Registering MGM599/8 in 1st Semester)

1. Submit the Supervisor Confirmation Form for Project no later than the 1st week of the 2nd semester's Final Exam.
2. Register for the course in the 1st Semester of the following Academic Year.
3. Submit the report and complete the seminar and viva voce requirement before the end of the same semester.
4. Grade will be announced concurrently with the 1st Semester's course results.

FULL-TIME STUDENTS (Registering MGM599/8 in 2nd Semester)

1. Submit the Supervisor Confirmation Form for Project no later than the 13th week of the 1st Semester.
2. Register for the course in the 2nd Semester of the same Academic Year.
3. Submit a report in Aug/Sept towards the end of the 2nd Semester and complete the seminar and viva-voce requirement (date will be announced to the student).
4. Grade will be announced after KSCP (*Kursus Semasa Cuti Panjang*).

Students who have registered MGM599/8 in any of the academic sessions are required to submit their project report (after confirmation by their respective supervisors) no later than a date will be announced to the student. Please note that students are required to submit a research paper from a compilation of their research which is to be appended together with their report. The template for the research paper will be provided via the school's website. The submitted report will be assessed by a committee of examiners and, within 1 – 2 weeks after this date, there will be a seminar presentation (30 mins) followed by viva-voce. The viva- voce session will begin with a short oral presentation by the student regarding his/her project's achievements followed by a question-and-answer session.

Full details of MGM599/8 guidelines are available via https://math.usm.my/index.php/resources/resources-pg.
All academic staff in the School of Mathematical Sciences can be appointed as Project Supervisor for MGM 599/8 Project Course. List of all academic staffs are available on https://math.usm.my/index.php/ab/academic-staff

SYNOPSIS OF ELECTIVE COURSES

1.0   MGM501/4   Analysis *(Analisis)*

This course is designed to bridge the calculus course with rigorous mathematics courses, with plenty of thoerems and proofs. This theory of analysis that stemmed from the calculus is meant to enhance and to strengthen student's comprehension, as well as to enable them to see analysis as a unification of proposed ideas.

2.0   MGM503/4   Combinatorics *(Kombinatorik)*

This course introduces students to the fundamental techniques of enumeration and various combinatorial objects. The topics include the basic counting principles, the combinatorial structures of permutations and combinations, binomial and multinomial theorems, recurrence relations, generating functions and the principle of inclusion-exclusion. Some applications of combinatorics will also be discussed.

3.0   MGM 563/4   Statistical Inference *(Pentaabiran Statistik)*

This course exposes the students to important concepts in statistical inference such as sampling distribution, estimation theory and hypothesis testing.

4.0   MGM 581/4   Mathematics and Technology *(Matematik dan Teknologi)*

This course introduces students to technologies that can be applied in the teaching and learning of mathematics such as computer softwares, internet applications and mobile technology. Students will explore topics in algebra, calculus, differential equations, statistics and others.

5.0   PMC 561/3   Theories of Teaching and Learning Mathematics
                     (Teori Pengajaran dan Pembelajaran dalam Matematik)

This course aims to equip students with the contemporary research studies related to the theories of teaching and learning mathematics. The course discussion will focus on the development of mathematics learning theories, as well as the implications of these theories on the teaching and learning of mathematics in schools. The course syllabus includes: Cognitive theories in the mathematics learning such as Behaviorism, Constructivism, Radical Constructivism, social constructivism including the works of Dienes, Bruner, Piaget, Skemp, von Glasserfield and Vygotsky; Information processing theory; Representation and Visualization in mathematics; and van Hiele theory. Implications of learning theories toward the teaching of mathematics in schools, and research in mathematics education will also be discus

D. LOCATION

Master of Science in Teaching of Mathematics programme is offered at two locations

- Penang Campus

- Kuala Lumpur Campus

Penang Campus   : School of Mathematical Sciences
Universiti Sains Malaysia, 11800 USM Pulau Pinang

Kuala Lumpur Campus   : Level 20, MoF Inc. Tower, Platinum Park,
No. 9 Persiaran KLCC, 50088 Kuala Lumpur

For more information on USM campus in Kuala Lumpur, please visit USM@KL at
https://www.usm.my/campuses/usm-kl

E. GUIDELINES FOR PREPARATION PROJECT REPORT (MGM599/8)

The complete guidelines for preparation of the project report, please refer to the
https://math.usm.my/index.php/resources/resources-pg

Examination of the Project

1. The supervisor and the internal examiner appointed by the school board will be given a copy of the Project Report for examination purposes and to be completed within 2 weeks.

2. Candidates need to present a seminar on the Project that has been submitted for examination. The Project Report will be evaluated during the viva-voce sessions. It will be held on a specific date that will be informed later at the School of Mathematical Sciences (candidates will be notified the venue and the time two weeks before the viva). The seminar includes the presentation of the research background, framework, hypothesis, findings, discussion and recommendations. Each candidate will be allocated 15-20 minutes for the presentation and 10 minutes for the question-and-answer session.

3. The Panel for the viva-voce comprised by the Deputy Dean (Research, Innovation & Industry-Community Engagement), the Chairman of Academic Affairs (Pure Mathematics), the Supervisor and the Internal Examiner.

4. After all corrections (if any) and the decision of the Panel of Examiners are implemented, candidates who PASS should submit the final project. If a hard copy is required, the candidate must submit two (2) hard cover project bound binding in red buckram or rexine together with the Final Project Submission Form which can be obtained from the School of Mathematical Sciences website (https://math.usm.my/index.php/resources/resources-pg).
The full project title, name of the candidate, name of the university, and year of submission of the project should be **printed in gold, font size 18, on the cover page.**

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School of Mathematical Sciences
Universiti Sains Malaysia
11800 USM, Penang, Malaysia
Tel : +604 653 3284
E-mail : dean_mat@usm.my
Website : https://math.usm.my