
Special Programme in Mathematics (SPM) Briefing

November 2023

Definition

Special Programme in Mathematics consists of:

- Four Core S-courses

- Two Advanced courses (MA42xx)

- Two Graduate courses (MA52xx except ...)

A student completes the SPM by obtaining a pass in each of the above courses.

Optional: student-led seminar on advanced topics

Four Core S-courses

□ MA2101S Linear Algebra II

[Sem 1] – A/P CHIN Chee Whye

□ MA2202S Algebra I

[Sem 2] – Dr BAO Huanchen

□ MA2108S Mathematical Analysis I

[Sem 2] – Dr Yu Hui

□ MA3211S Complex Analysis I

[Sem 2] – Prof DINH Tien Cuong

Two Advance courses (MA42xx)

- MA4203 Galois Theory
- MA4207 Mathematical Logic
- MA4221 Partial Differential Equations
- MA4229 Fourier Analysis and Approximation
- MA4230 Matrix Computation
- MA4233 Dynamical Systems
- MA4235 Topics in Graph Theory
- MA4251 Stochastic Processes II
- MA4252 Advanced Ordinary Differential Equations
- MA4254 Discrete Optimization
- MA4255 Numerical Methods in Differential Equations
- MA4260 Stochastic Operations Research
- MA4261 Coding and Cryptography
- MA4262 Measure and Integration
- MA4263 Analytic Number Theory
- MA4264 Game Theory
- MA4268 Mathematics for Visual Data Processing
- MA4270 Data Modelling and Computation
- MA4271 Differential Geometry of Curves and Surfaces
- MA4273 Algebraic Geometry of Curves and Surfaces

Two Graduate courses (MA52xx)

Almost all MA5xxx courses can be taken to fulfill this requirement. The **only exception** is:

- ~~1. MA5203 Graduate Algebra I~~
2. MA5205 Graduate Analysis I



Student-led seminar

- Organized and led by SPM students
(but opened to all)
 - Work through landmark papers on topics of current research
 - Department facilitates by providing funding for refreshments
 - 2022/2023 Sem1 : Morse theory, K-theory
-

Sample Study Plan

for Students Admitted from AY2021/2022 or after

| Year 1 | | Year 2 | | Year 3 | |
|---|--|--|--|--|---|
| Sem 1 | Sem 2 | Sem 1 | Sem 2 | Sem 1 | Sem 2 |
| <ul style="list-style-type: none"> • MA1100T Basic Discrete Mathematics (T) • MA2002 Calculus | <ul style="list-style-type: none"> • MA2001 Linear Algebra I • MA2104 Multivariable Calculus • MA2108S Mathematical Analysis I (S) | <ul style="list-style-type: none"> • MA2101S Linear Algebra II (S) • MA2116/ST2131 Probability • Other MA courses (MA22xx/MA32xx / MA42xx) | <ul style="list-style-type: none"> • MA2202S Algebra I (S) • MA3211S Complex Analysis (S) • At least one MA42xx course | <ul style="list-style-type: none"> • At least one MA42xx course • At least one MA52xx course | <ul style="list-style-type: none"> • At least one MA52xx course |

Comparison between S-course vs non-S version

- Same time slots for classes, same exam dates (usually)
 - Separate lectures, lecturers, tests, tutorials and exams.
 - 1 additional tutorial hour per week.
 - 1 additional course unit.
 - Enhanced syllabus:
 - more depth
 - more theory
 - more proofs
-

SPM Students

- Intake: approximately 15 per year.
 - Students with strong passion and aptitude for mathematics.
 - Primarily target Mathematics majors.
 - Also welcome students from QF, Stats, DSA, DSE, Computer Science, Physics, Engineering.
-

Benefits

- ❑ Small classes.
 - ❑ Strong support from the math department.
 - ❑ SPM completion statement in NUS transcript.
 - ❑ SPM prize \$500 every year. Past recipients:
 - 2009 : GAO Fan
 - 2010 : TEO Wei Hao
 - 2011 : GOH Jun Le
 - 2012 : SHI Xiaojie
 - 2013 : LUO Yusheng
 - 2014 : Johan GUNARDI
 - 2015 : Stefanus LIE
 - 2016 : KHOR Shi-Jie
 - 2017 : GAO Yuan, LEE Si Ying
 - 2018 : QUEK Ming Hao
 - 2019 : ANG Yan Sheng
 - 2020 : YAP Jit Wu
 - 2021 : LE Nhat Hoang
 - 2022 : YUNG Cheuk Wai Clement
 - 2023 : PAN Jingbin
-

More Benefits

Less tangible but more important benefits:

- Greater depth and sophistication.
 - Better understanding of mathematics as a whole.
 - Learning together with other keen students.
 - Closer attention from S-course lecturer.
 - Recommendation letters.
-

Reading S-courses

- We do not enforce SPM students to read the S-courses.
 - Students manage and decide when to take an S-course, as long as they can complete the SPM requirements before their graduation.
 - SPM students going for overseas exchange programme can also map up to one S-course with a comparable course at the overseas university.
 - Students can take one or more S-courses without enrolling in the SPM.
-

What if I find an S-course too tough?

You can drop it, or switch to the non-S version:

- Weeks 1,2 : no penalty (NUS policy)
- Weeks 3,4 : no penalty (SPM special accommodation)
- Weeks 5,6,recess : W grade for S-course (NUS policy)
- Weeks 7 onwards : F grade for S-course (NUS policy)

What if I cannot complete the requirements for SPM?

There is no penalty for not completing or dropping out of the SPM.

How to enroll?

1. Do well in MA1100T
-- or : do well in MA1100, MA2001 and MA2002
(official exemption = done well).
 2. Apply online at the SPM webpage
 3. Indicate the S-courses you want to take in the coming semester. Also indicate whether you want to enroll into the SPM (if you aren't already in it)
 4. Bid for the non-S version through CourseReg.
 - This is to secure your enrolment in the non-S version in case you don't get into the S-version
 - You will automatically be removed from the non-S version once you get into the S-version.
-

General guidelines for approval

- Grade conversion: (illustration only)
 - A+ for CS1231/S → A for MA1100 → A– for MA1100T
 - A+ for MA1522 → A for MA2001
 - A+ for MA1521 → A for MA2002
- A student has to show the potential to get at least A– grades for the S-courses.
- This includes a willingness to commit time and effort to the S-courses.
- Roughly speaking: if your MA course grades are
 - all A+ / A / A- : most likely approved
 - mostly As but some Bs : probably approved but possibly not
 - mostly Bs or worse: possibly approved but probably not

Contact us

- SPM Coordinator :
A/P CHIN Chee Whye S17-07-14
 - SPM Website :
<https://www.math.nus.edu.sg/ug/spm/>
-