

1. You are advised to read the instructions to courses registration posted in STARS. Please refer to STARS for the schedule of registration.
2. Students in Physics and Mathematical Sciences (Double Major) should also refer to the instructions for programme in Mathematical Sciences. Students are only allowed to register for courses up to their **Normal Load** during their scheduled course registration day (during **both** their scheduled timeslot and between 5pm to 10pm on the same day). To register more than Normal Load, students would only be able to do so during the Add/Drop period. Please refer to the table below for the normal and maximum load requirement for your year of study.

Programme	Study Years	Normal Load	Maximum Load
PHMS	1, 3-4	22	22
PHMS	2	19*	22

*For PHMS Y2 (U22 intake), ICC course CC0007 will be system-allocated **after** the main registration period. Hence the Normal Load excludes AU of CC0007.

3. If you wish to read a course that will exceed your maximum load, you can apply online through this link: <https://raspberry.spms.ntu.edu.sg/overload/apply/default.aspx>. Please note that approval is granted to a specific course that you wish to overload.
4. The following courses are to be read during Semester 2 AY 2022/2023 (subject to pre-requisites).
5. Please refer to URL for the most updated ICC/ GER Core requirements and programme requirements:
<https://www.ntu.edu.sg/spms/admissions/undergrad/core-courses>
<https://www.ntu.edu.sg/spms/about-us/physics/undergrad/degree-programmes>

PHMS Year 1 – U23 intake			
Course Code	Course Title	Course Type	Course AU
PH1106	Electricity and Magnetism	Core	3
MH1101	Calculus II	Core	4
MH1201	Linear Algebra II	Core	4
CC0001	Inquiry and Communication in an Interdisciplinary World	ICC Core	2
CC0003	Ethics & Civics in a Multicultural World	ICC Core	2
CC0005	Healthy Living and Wellbeing	ICC Core	3

PHMS Year 2 – U22 intake			
Course Code	Course Title	Course Type	Course AU
PH2101	Quantum Mechanics I	Core	3
PH2199	Physics Laboratory IIb	Core	2
MH2801	Complex Methods for the Sciences	Core	3
MH3100	Real Analysis I	Core	4
PS0002	Introduction to Data Science and Artificial Intelligence	Core	3
CC0007	Science & Technology for Humanity	ICC-Core	3

PHMS Year 3 – U21 intake			
Course Code	Course Title	Course Type	Course AU
MH2220	Algebra I	Core	3
MH1403	Algorithms and Computing	Core	3
MH3110	Ordinary Differential Equations	Core	4
HW0218	Communication Across the Sciences	ICC-Core	2

PHMS Year 4 – U20 intake			
Course Code	Course Title	Course Type	Course AU
PH4511	Seminar in Mathematical Physics	Core	2

GER-Core (non-ICC intakes only)				
Course Code	Course Title	Course Type	Course AU	Remarks
ET0001	Enterprise & Innovation	GER-Core	1	Index: 70901
GC0001	Sustainability: Seeing Through the Haze	GER-Core	1	Index: 70902
ML0003	Kickstart Your Career Success	GER-Core	1	Index: 70903
PS0002	Introduction to Data Science & Artificial Intelligence	GER-Core	3	

The following **GER-core courses** are no longer offered. Replacement course (if applicable) is indicated next to the respective course. Please email SPMSUndgrad@ntu.edu.sg if you need to take the replacement course **after** registering for Core and/or Major-PE courses.

Course Code & Course Title	Replacement Course (if applicable)
HW0128 Scientific Communication I	CC0001 Inquiry and Communication in an Interdisciplinary Word
HW0228 Scientific Communication II	HW0218 Communication Across the Sciences
PS8001 Defence Science	-NA-
PS0003 Plan your Career Path	-NA-

PHY Major PE			
Course Code	Course Title	Course Type	Course AU
PH3404	Physics of Classical and Quantum Information	Major PE	3
PH3406	Open Quantum Systems	Major PE	4
PH4404	Nanoscale Physics	Major PE	3
PH4414	Introduction to Spintronics	Major-PE	4
PH4418	Physics in the Industry	Major PE	4
PH4508	Introduction to General Relativity	Major-PE	3
PH4421	Final Year Project (AY19 batch and after)	Major PE	10

MATH Major PE				
Course Code	Course Title	Course Type	Course AU	Remarks
MH1301	Discrete Mathematics	Major PE	3	
MH3400	Algorithms for the Real World	Major PE	4	
MH3511	Data Analysis with Computer	Major PE	3	
MH3600	Topology and Manifolds	Major PE	4	ICC intakes only
MH3700	Numerical Analysis I	Major PE	3	
MH3701	Basic Optimization	Major PE	4	
MH4100	Real Analysis II	Major PE	4	
MH4110	Partial Differential Equations	Major PE	4	
MH4310	Coding Theory	Major PE	4	
MH4500	Time Series Analysis	Major PE	4	
MH4501	Multivariate Analysis	Major PE	4	
MH4512	Clinical Trials	Major PE	4	
MH4514	Financial Mathematics	Major PE	4	
MH4517	Data Applications in Natural Sciences	Major PE	4	
MH4601	Differential Geometry	Major PE	4	
MH4900	Final Year Project	Major PE	8	

6. Please ensure that you can fulfil the respective Major-PE requirements when registering Major-PE courses:

• **Matric Year 2020**

- 16 AU of Physics courses, with at least two PH4XXX courses (including PH4421 if chosen).
- 16 AU of Mathematics courses, with at least two MH4XXX courses (including MH4900 if chosen).
- Students must do a Final Year Project: either PH4421 (Physics) or MH4900 (Mathematical Sciences).

• **Matric Year 2021 onwards**

- If PH4421 (Physics FYP) is selected:

1. Must take Professional Attachment (PH4416) during Special Terms
 2. At least one PH4XXX course (including PH4421).
 3. At least one MH4XXX course.
- ii. If MH4900 (Math FYP) is selected:
1. Must take Professional Attachment (PH4416) during Special Terms
 2. At least 11 AU from Physics Major Prescribed Electives, with at least two PH4XXX courses.
 3. At least one MH4XXX course (including MH4900).
7. You are allowed to read higher level courses if you have met the pre-requisites and there are vacancies available. Pre-requisites may also be met through exemptions.

8. The location of the Mathematics Labs is as follow.

Mathematics Lab	Location
COMP LAB 1	SPMS-MAS-03-02
COMP LAB 2	SPMS-MAS-03-03
COMP LAB 3	SPMS-MAS-03-04

9. Students with Admission Year 2023 who are intending to take up higher level courses whereby the pre-requisites are fulfilled through exemptions are to write in to SPMSUndgrad@ntu.edu.sg. Exemptions will only be updated after add/drop period and will only be reflected at the end of the semester, together with semester results release.
10. Students who have taken courses as pre-requisites during exchange programme in the current Semester, please submit your waiver request via the Online Waiver Application using this link: <https://walnut.spms.ntu.edu.sg/waiver/student/default.aspx>. Please upload a copy of the course matching details and a copy of your exchange transcript (if any) in pdf format in your application. This is subjected to approval from approving officer.
11. Students who are interested may take graduate courses as prescribed electives or unrestricted electives where applicable. **A minimum CGPA of 4.00 is required for the application.** All applications for Graduate Courses are subject to approval.

Graduate course information may be found from <https://www.ntu.edu.sg/spms/about-us/physics/grad/course-info>. Students may write in to SPMSundgrad@ntu.edu.sg for more details on the application process. These are the graduate courses offered in AY2023 Semester 2:

Course Code	Course Title	Pre-requisite	Course Type Offered
PH7015	Advanced Optics	PH2101 or PH2301	UE/BDE
PH7021	Quantum Information	PH3404 or MH2500	UE/BDE
PH7024	Graduate Quantum Mechanics	PH3101	UE/BDE

12. Enquiries on curriculum may be directed to:
- Assoc Prof Cheong Siew Ann (cheongsa@ntu.edu.sg)
 - Ms. Tan Soo Pei, Juliet (JulietTanSP@ntu.edu.sg)

- SPMSUndgrad@ntu.edu.sg – Math Curriculum
13. Enquiries on courses registration may be directed to SPMSundgrad@ntu.edu.sg. Your matriculation number must always be included in your e-mail. Please refrain from sending multiple similar e-mails as this will not expedite the response but rather it will cause undue delay. All enquiries will be attended to and will be replied as soon as possible, depending on the nature of the request. Appeals for GER-PE and UE vacancies are to be submitted through the online appeal system and will not be responded to if submitted otherwise.
14. Enquiries on network performance, Studentlink password or STARS PIN may be directed to NSS Service Desk using the IT Service Desk Form below:
- [ServiceNow](#)
 - [Password Services](#) (To change or reset Network Account password)
 - Service Desk Form: <https://www.ntu.edu.sg/life-at-ntu/internet-account-and-policy/service-desk-form>