

(Study Scheme - English)

Programme Title Mathematics and Applied Mathematics	
Study Scheme <p style="text-align: center;">Applicable to students admitted in 2024-25 and thereafter</p>	
Major Programme Requirement Studies in Mathematics and Applied Mathematics are divided into FOUR main streams and students are required to specialize in one of the streams: (1) Pure mathematics; (2) Applied mathematics; (3) Financial mathematics; and (4) Mathematical Modeling and AI.	
Pure Mathematics Stream Students are required to complete a minimum of 70 units of courses as follows:	
	Units
1. School Package: CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2. Required Courses: MAT2001, 2050 ^[b] , 3004, 3006, 3040 ^[d] , 3253, 4002, 4033, 4220	27
3. Elective Courses: 21 units of courses selected from the following: BIO1001, CSC3001, FMA4800, MAT3005, 3007, 3093, 3220, 3240, 3250, 3280, 3300, 3350, 4001, 4003, 4004, 4006, 4007, 4010, 4080, 4400, 4500, 4600, 5110, 5120, 5140, 5210, 5320, 6110, 6115, 6230, 6330, PHY4221, STA4001	21
Total:	70
Applied Mathematics Stream Students are required to complete a minimum of 70 units of courses as follows:	
	Units
1. School Package:	

	CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2.	Required Courses: MAT2001, 2050 ^[b] , 3006, 3007, 3040 ^[d] , 3253, 3300, 4001, 4220	27
3.	Elective Courses: 21 units of courses selected from the following: BIM3001, BIO1001, CHM2002, CSC3001, 3002, 3100, DDA3020, FMA4800, MAT3004, 3093, 3220, 3240, 3250, 3280, 3350, 4002, 4003, 4004, 4006, 4007, 4010, 4033, 4240, 4400, 4500, 4600, 5140, 5620, 6110, 6115, 6610, PHY2001, 3002, 3110, 3201, 4221, 4260, STA4001	21
	Total:	70

Financial Mathematics Stream

Students are required to complete a minimum of 70 units of courses as follows:

		Units
1.	School Package: CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2.	Required Courses: ECO3121, FIN3080, MAT2001, 2050 ^[b] , 3040 ^[d] , 3280, 4001, STA2002H, 4001	27
3.	Elective Courses: 21 units of courses selected from the following: BIO1001, ECO2011, 3410, FIN2010, 4110, 4120, FMA4200, 4800, MAT3006, 3007, 3220, 3240, 3250, 3300, 4220, 4240, 4400, 4500, 6610, 6710, 6810, RMS4001, 4050, 4060, STA4004	21
	Total:	70

Mathematical Modeling and AI Stream

Students are required to complete a minimum of 70 units of courses as follows:

		Units
1.	School Package: CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22

2.	Required Courses: AIE4001, CSC3100, MAT2001, 2050 ^[b] , 2240, 3007, 3040 ^[d] , 3300, 4001	27
3.	Elective Courses: 21 units of courses selected from the following: AIE3002, BIM2005, 3001, BIO1001, BME3320, CSC3001, 3002, DDA3020, 4210, 4250, ECE4513, ERG2010, FMA4800, MAT3006, 3220, 3240, 3250, 3253, 3280, 3350, 4002, 4003, 4004, 4006, 4007, 4010, 4033, 4220, 4240, 4400, 4500, 4600, 6610, 6630, PHY2650, STA4001	21
Total:		70

Notes:

- [a] Students can choose to take either MAT1011 and MAT1012 or MAT1001 and MAT1002 to fulfill the graduation requirement.
- [b] Students can choose to take either MAT2050 or MAT2060 to fulfill the graduation requirement.
- [c] Students can choose to take either MAT2040 or MAT2042 to fulfill the graduation requirement.
- [d] Students can choose to take either MAT3040 or MAT3042 to fulfill the graduation requirement.
- [e] Students can choose to take either CSC1001 and CSC1002 or CSC1003 and CSC1004 or CSC1005 and CSC1006 to fulfill the graduation requirement.
- [f] Students can choose to take either CHM1001 or CHM1011 to fulfill the graduation requirement.
- [g] Students can choose to take either PHY1001 or PHY1011 to fulfill the graduation requirement.

- [h] Courses included in the calculation of Major GPA for honors classification:
- a) Pure Mathematics Stream
MAT1001/1011, MAT1002/1012, CSC3001, FMA4800, PHY4221, STA4001 and MAT courses at 2000 and above level.
 - b) Applied Mathematics Stream
MAT1001/1011, MAT1002/1012, BIM3001, CHM2002, CSC3001, 3002, 3100, DDA3020, FMA4800, PHY2001, 3002, 3110, 3201, 4221, 4260, STA4001 and MAT courses at 2000 and above level.
 - c) Financial Mathematics Stream
MAT1001/1011, MAT1002/1012, ECO2011, 3121, 3410, FIN3080, 4110, 4120, FMA4200, 4800, RMS4001, 4050, 4060, STA2002H, 4001, 4004 and MAT courses at 2000 and above level.
 - d) Mathematical Modeling and AI Stream
MAT1001/1011, MAT1002/1012, AIE3002, 4001, BIM2005, 3001, BME3320, CSC3001, 3002, 3100, DDA3020, 4210, 4250, ECE4513, ERG2010, FMA4800, PHY2650, STA4001 and MAT courses at 2000 and above level.
- [i] Undergraduate students are allowed to take postgraduate courses offered under MPhil-PhD programmes for credit if (a) they are Year 3 or above, their cumulative GPA is 3.00 or above and the application is approved by the course offering unit; or (b) by special approval of the Dean of the Graduate School, following recommendation of student's major School and the course offering unit. The postgraduate courses in the Major Elective course list will be included in the calculation of cumulative GPA and Major GPA.

(Study Scheme – Chinese)

課程名稱 數學與應用數學	
修讀辦法 二〇二四至二五年度及以後入學學生適用	
主修課程要求 本課程分設四項專修範圍，學生須選修其中一項專修範圍： (1) 理論數學； (2) 應用數學； (3) 金融數學；及 (4) 數學建模與人工智能。	
理論數學專修範圍 學生須至少修畢以下科目共 70 學分：	
	學分
1. 學院課程： CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2. 必修科目： MAT2001, 2050 ^[b] , 3004, 3006, 3040 ^[d] , 3253, 4002, 4033, 4220	27
3. 選修科目： 從以下選修 21 學分：	21
BIO1001, CSC3001, FMA4800, MAT3005, 3007, 3093, 3220, 3240, 3250, 3280, 3300, 3350, 4001, 4003, 4004, 4006, 4007, 4010, 4080, 4400, 4500, 4600, 5110, 5120, 5140, 5210, 5320, 6110, 6115, 6230, 6330, PHY4221, STA4001	
共：	70
應用數學專修範圍 學生須至少修畢以下科目共 70 學分：	
	學分
1. 學院課程： CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22

2.	必修科目：	
	MAT2001, 2050 ^[b] , 3006, 3007, 3040 ^[d] , 3253, 3300, 4001, 4220	27
3.	選修科目：	
	從以下選修 21 學分：	21
	BIM3001, BIO1001, CHM2002, CSC3001, 3002, 3100, DDA3020, FMA4800, MAT3004, 3093, 3220, 3240, 3250, 3280, 3350, 4002, 4003, 4004, 4006, 4007, 4010, 4033, 4240, 4400, 4500, 4600, 5140, 5620, 6110, 6115, 6610, PHY2001, 3002, 3110, 3201, 4221, 4260, STA4001	
	共：	<hr/> 70

金融數學專修範圍

學生須至少修畢以下科目共 70 學分：

		學分
1.	學院課程：	
	CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2.	必修科目：	
	ECO3121, FIN3080, MAT2001, 2050 ^[b] , 3040 ^[d] , 3280, 4001, STA2002H, 4001	27
3.	選修科目：	
	從以下選修 21 學分：	21
	BIO1001, ECO2011, 3410, FIN2010, 4110, 4120, FMA4200, 4800, MAT3006, 3007, 3220, 3240, 3250, 3300, 4220, 4240, 4400, 4500, 6610, 6710, 6810, RMS4001, 4050, 4060, STA4004	
	共：	<hr/> 70

數學建模與人工智能專修範圍

學生須至少修畢以下科目共 70 學分：

		學分
1.	學院課程：	
	CHM1001 ^[f] , CSC1005, 1006 ^[e] , MAT1011, 1012 ^[a] , 2042 ^[c] , PHY1001 ^[g] , STA2001H	22
2.	必修科目：	

AIE4001, CSC3100, MAT2001, 2050^[b], 2240, 3007, 3040^[d], 3300, 4001 27

3. 選修科目：

從以下選修21學分： 21

AIE3002, BIM2005, 3001, BIO1001, BME3320, CSC3001, 3002, DDA3020, 4210, 4250, ECE4513, ERG2010, FMA4800, MAT3006, 3220, 3240, 3250, 3253, 3280, 3350, 4002, 4003, 4004, 4006, 4007, 4010, 4033, 4220, 4240, 4400, 4500, 4600, 6610, 6630, PHY2650, STA4001

共： 70

註：

- [a] 學生可以修讀 MAT1001, MAT1002 或 MAT1011, MAT1012 以滿足畢業要求。
- [b] 學生可以修讀 MAT2050 或 MAT2060 以滿足畢業要求。
- [c] 學生可以修讀 MAT2040 或 MAT2042 以滿足畢業要求。
- [d] 學生可以修讀 MAT3040 或 MAT3042 以滿足畢業要求。
- [e] 學生可以修讀 CSC1001, CSC1002 或 CSC1003, CSC1004 或 CSC1005, CSC1006 以滿足畢業要求。
- [f] 學生可以修讀 CHM1001 或 CHM1011 以滿足畢業要求。
- [g] 學生可以修讀 PHY1001 或 PHY1011 以滿足畢業要求。

- [h] 下列科目將會計入主修科目之平均績點，並用以釐定學位等級：
- a) 理論數學專修範圍
MAT1001/1011, MAT1002/1012, CSC3001, FMA4800, PHY4221, STA4001, MAT 科目中 2000 及以上程度的科目；
 - b) 應用數學專修範圍
MAT1001/1011, MAT1002/1012, BIM3001, CHM2002, CSC3001, 3002, 3100, DDA3020, FMA4800, PHY2001, 3002, 3110, 3201, 4221, 4260, STA4001, MAT 科目中 2000 及以上程度的科目；
 - c) 金融數學專修範圍
MAT1001/1011, MAT1002/1012, ECO2011, 3121, 3410, FIN3080, 4110, 4120, FMA4200, 4800, RMS4001, 4050, 4060, STA2002H, 4001, 4004, MAT 科目中 2000 及以上程度的科目。
 - d) 數學建模與人工智能專修範圍
MAT1001/1011, MAT1002/1012, AIE3002, 4001, BIM2005, 3001, BME3320, CSC3001, 3002, 3100, DDA3020, 4210, 4250, ECE4513, ERG2010, FMA4800, PHY2650, STA4001, MAT 科目中 2000 及以上程度的科目。
- [i] 本科學生可申請修讀本修讀辦法中的碩博項目科目，申請須滿足(a)學生已至大三或以上年級，累計平均績點為 3.00 或以上，並獲開課學院批准；或者 (b) 經其所屬學院及開課學院推薦，獲得研究生院院長的特別批准。專業選修中的研究生科目將會計入累計平均績點及主修科目之平均績點。

(Recommended Course Pattern – English)

Recommended Course Pattern

- Sufficient units should be allowed in each term for students to fulfill the University Core Requirements, which include: (i) 3 units of Chinese; (ii) 12 units of English; (iii) 1 unit of IT; (iv) 18 units of General Education; and (v) 2 units of Physical Education and Health.
- Programmes with different streams/concentrations are required to provide the recommended pattern for each stream/concentration.

Major Programme Requirement of <u>Pure Mathematics Stream</u>		
	Recommended Course Pattern	Units
First Year of Attendance	1 st term School Package: CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	2 nd term School Package: CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
Second Year of Attendance	1 st term School Package: STA2001H Major Required: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	2 nd term Major Required: MAT2001, 3004, 3253	9
Third Year of Attendance	1 st term Major Required: MAT3006, 4220 Major Elective(s): one course	6 3
	2 nd term Major Required: MAT4002 Major Elective(s): two courses	3 6
Fourth Year of Attendance	1 st term Major Required: MAT4033 Major Elective(s): two courses	3 6
	2 nd term Major Elective(s): two courses	6
Total (Major Requirement including School Package):		70

(Recommended Course Pattern – Chinese)

修課推介

- 每學期均須預留足夠學分讓同學符合大學核心課程要求，包括：(一) 中文三學分；(二) 英文十二學分；(三) 信息科技一學分；(四) 通識教育十八學分及(五) 體育與健康兩學分。
- 有不同專修範圍的課程須為每項專修範圍提供修課推介。

理論數學專修範圍主修課程要求		
	修課推介	學分
第一修業學年	第一學期 學院課程：CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	第二學期 學院課程：CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
第二修業學年	第一學期 學院課程: STA2001H 主修必修科目: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	第二學期 主修必修科目: MAT2001, 3004, 3253	9
第三修業學年	第一學期 主修必修科目: MAT3006, 4220 主修選修科目: 一科	6 3
	第二學期 主修必修科目: MAT4002 主修選修科目: 兩科	3 6
第四修業學年	第一學期 主修必修科目: MAT4033 主修選修科目: 兩科	3 6
	第二學期 主修選修科目: 兩科	6
合共 (主修要求包括學院課程):		70

Recommended Course Pattern – English)

Recommended Course Pattern

1. Sufficient units should be allowed in each term for students to fulfill the University Core Requirements, which include: (i) 3 units of Chinese; (ii) 12 units of English; (iii) 1 unit of IT; (iv) 18 units of General Education; and (v) 2 units of Physical Education and Health.
2. Programmes with different streams/concentrations are required to provide the recommended pattern for each stream/concentration.

Major Programme Requirement of <u>Applied Mathematics Stream</u>		
	Recommended Course Pattern	Units
First Year of Attendance	1 st term School Package: CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	2 nd term School Package: CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
Second Year of Attendance	1 st term School Package: STA2001H Major Required: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	2 nd term Major Required: MAT2001, 3253, MAT4001	9
Third Year of Attendance	1 st term Major Required: MAT3006,4220 Major Elective(s): one course	6 3
	2 nd term Major Required: MAT3007 Major Elective(s): two courses	3 6
Fourth Year of Attendance	1 st term Major Required: MAT3300 Major Elective(s): two courses	3 6
	2 nd term Major Elective(s): two courses	6
Total (Major Requirement including School Package):		70

(Recommended Course Pattern – Chinese)

修課推介

- 每學期均須預留足夠學分讓同學符合大學核心課程要求，包括：(一) 中文三學分；(二) 英文十二學分；(三) 信息科技一學分；(四) 通識教育十八學分及(五) 體育與健康兩學分。
- 有不同專修範圍的課程須為每項專修範圍提供修課推介。

應用數學專修範圍主修課程要求		
	修課推介	學分
第一修業學年	第一學期 學院課程：CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	第二學期 學院課程：CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
第二修業學年	第一學期 學院課程: STA2001H 主修必修科目: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	第二學期 主修必修科目: MAT2001, 3253, MAT4001,	9
第三修業學年	第一學期 主修必修科目: MAT3006, 4220 主修選修科目: 一科	6 3
	第二學期 主修必修科目: MAT3007 主修選修科目: 兩科	3 6
第四修業學年	第一學期 主修必修科目: MAT3300 主修選修科目: 兩科	3 6
	第二學期 主修選修科目: 兩科	6
合共 (主修要求包括學院課程):		70

(Recommended Course Pattern – English)

Recommended Course Pattern

1. Sufficient units should be allowed in each term for students to fulfill the University Core Requirements, which include: (i) 3 units of Chinese; (ii) 12 units of English; (iii) 1 unit of IT; (iv) 18 units of General Education; and (v) 2 units of Physical Education and Health.
2. Programmes with different streams/concentrations are required to provide the recommended pattern for each stream/concentration.

Major Programme Requirement of <u>Financial Mathematics Stream</u>		
	Recommended Course Pattern	Units
First Year of Attendance	1 st term School Package: CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	2 nd term School Package: CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
Second Year of Attendance	1 st term School Package: STA2001H Major Required: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	2 nd term Major Required: MAT2001, MAT4001, STA2002H	9
Third Year of Attendance	1 st term Major Required: ECO3121, FIN3080 Major Elective(s): one course	6 3
	2 nd term Major Required: MAT3280 Major Elective(s): two courses	3 6
Fourth Year of Attendance	1 st term Major Required: STA4001 Major Elective(s): two courses	3 6
	2 nd term Major Elective(s): two courses	6
Total (Major Requirement including School Package):		70

(Recommended Course Pattern – Chinese)

修課推介

1. 每學期均須預留足夠學分讓同學符合大學核心課程要求，包括：(一) 中文三學分；(二) 英文十二學分；(三) 信息科技一學分；(四) 通識教育十八學分及 (五) 體育與健康兩學分。
2. 有不同專修範圍的課程須為每項專修範圍提供修課推介。

金融數學專修範圍主修課程要求		
	修課推介	學分
第一修業學年	第一學期 學院課程：CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	第二學期 學院課程：CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
第二修業學年	第一學期 學院課程: STA2001H 主修必修科目: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	第二學期 主修必修科目: MAT2001, MAT4001, STA2002H	9
第三修業學年	第一學期 主修必修科目: ECO3121, FIN3080, 主修選修科目: 一科	6 3
	第二學期 主修必修科目: MAT3280 主修選修科目: 兩科	3 6
第四修業學年	第一學期 主修必修科目: STA4001 主修選修科目: 兩科	3 6
	第二學期 主修選修科目: 兩科	6
合共 (主修要求包括學院課程):		70

(Recommended Course Pattern – English)

Recommended Course Pattern

1. Sufficient units should be allowed in each term for students to fulfill the University Core Requirements, which include: (i) 3 units of Chinese; (ii) 12 units of English; (iii) 1 unit of IT; (iv) 18 units of General Education; and (v) 2 units of Physical Education and Health.
2. Programmes with different streams/concentrations are required to provide the recommended pattern for each stream/concentration.

Major Programme Requirement of <u>Mathematical Modeling and AI Stream</u>		
	Recommended Course Pattern	Units
First Year of Attendance	1 st term School Package: CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	2 nd term School Package: CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
Second Year of Attendance	1 st term School Package: STA2001H Major Required: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	2 nd term Major Required: MAT2001, 2240, 4001	9
Third Year of Attendance	1 st term Major Required: CSC3100, MAT3007 Major Elective(s): one course	6 3
	2 nd term Major Required: AIE4001 Major Elective(s): two courses	3 6
Fourth Year of Attendance	1 st term Major Required: MAT3300 Major Elective(s): two courses	3 6
	2 nd term Major Elective(s): two courses	6
Total (Major Requirement including School Package):		70

(Recommended Course Pattern – Chinese)

修課推介

1. 每學期均須預留足夠學分讓同學符合大學核心課程要求，包括：(一) 中文三學分；(二) 英文十二學分；(三) 信息科技一學分；(四) 通識教育十八學分及 (五) 體育與健康兩學分。
2. 有不同專修範圍的課程須為每項專修範圍提供修課推介。

數學建模與人工智能專修範圍主修課程要求		
	修課推介	學分
第一修業學年	第一學期 學院課程：CHM1001(or CHM1011), CSC1005(or CSC1001 or CSC1003), MAT1011(or MAT1001)	9
	第二學期 學院課程：CSC1006(or CSC1002 or CSC1004), MAT1012(or MAT1002), PHY1001(or PHY1011), MAT2042(or MAT2040)	10
第二修業學年	第一學期 學院課程: STA2001H 主修必修科目: MAT2050(or MAT2060), MAT3040(or MAT3042)	3 6
	第二學期 主修必修科目: MAT2001, 2240, 4001	9
第三修業學年	第一學期 主修必修科目: CSC3100, MAT3007 主修選修科目: 一科	6 3
	第二學期 主修必修科目: AIE4001 主修選修科目: 兩科	3 6
第四修業學年	第一學期 主修必修科目: MAT3300 主修選修科目: 兩科	3 6
	第二學期 主修選修科目: 兩科	6
合共 (主修要求包括學院課程):		70

Course List

I. School Package for the School of Science and Engineering

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)	
Option H [#]	CHM1001	General Chemistry	普通化學	3
Option I [#]	CHM1011	Honours General Chemistry	普通化學榮譽課程	3
Option C [#]	CSC1001	Introduction to Computer Science: Programming Methodology	計算機科學導論：程序設計方法	3
	CSC1002	Computational Laboratory	計算機實驗	1
Option D [#]	CSC1003	Introduction to Computer Science and Java Programming	計算機科學與 Java 程序設計導論	3
	CSC1004	Computational Laboratory Using Java	Java 程序設計實驗	1
Option G [#]	CSC1005	Introduction to Computer Engineering: Programming and Applications	計算機工程導論：程序設計与应用	3
	CSC1006	Artificial Intelligence for Science and Engineering	人工智能在科學與工程中的應用	1
Option A [#]	MAT1001	Calculus I	微積分（一）	3
	MAT1002	Calculus II	微積分（二）	3
Option B [#]	MAT1011	Honours Calculus I	微積分榮譽課程（一）	3
	MAT1012	Honours Calculus II	微積分榮譽課程（二）	3
Option E [#]	MAT2040	Linear Algebra	線性代數	3
Option F [#]	MAT2042	Honours Linear Algebra	線性代數榮譽課程	3
Option J [#]	PHY1001	Mechanics	力學	3
Option K [#]	PHY1011	Honours Mechanics	力學榮譽課程	3
STA2001H		Honours Probability and Statistics I	概率及統計榮譽課程（一）	3

[#] Remark:

1. Students can choose to take either Option A or Option B to fulfill the graduation requirement.
2. Students can choose to take either Option C or Option D or Option G to fulfill the graduation requirement.
3. Students can choose to take either Option E or Option F to fulfill the graduation requirement.
4. Students can choose to take either Option H or Option I to fulfill the graduation requirement.
5. Students can choose to take either Option J or Option K to fulfill the graduation requirement.

II. Major Required courses

Pure Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)	
MAT2001	Honours Ordinary Differential Equations	常微分方程榮譽課程	3	
Option A [#]	MAT2050	Mathematical Analysis	數學分析	3
Option B [#]	MAT2060	Honours Mathematical Analysis	數學分析榮譽課程	3

MAT3004	Abstract Algebra I	抽象代數 (一)	3
MAT3006	Real Analysis	實分析	3
Option C [#]	MAT3040	Advanced Linear Algebra	高等線性代數
Option D [#]	MAT3042	Honours Linear Algebra II	線性代數榮譽課程 (二)
MAT3253	Complex Variables	複變函數	3
MAT4002	Introduction to Geometry and Topology	幾何與拓撲學導論	3
MAT4033	Differential Geometry	微分幾何	3
MAT4220	Partial Differential Equations	偏微分方程	3

[#] Remark:

Students can choose to take either Option A or Option B to fulfill the graduate requirement.
Students can choose to take either Option C or Option D to fulfill the graduate requirement.

Applied Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
MAT2001	Honours Ordinary Differential Equations	常微分方程榮譽課程	3
Option A [#]	MAT2050	Mathematical Analysis	數學分析
Option B [#]	MAT2060	Honours Mathematical Analysis	數學分析榮譽課程
MAT3006	Real Analysis	實分析	3
MAT3007	Optimization	最優化	3
Option C [#]	MAT3040	Advanced Linear Algebra	高等線性代數
Option D [#]	MAT3042	Honours Linear Algebra II	線性代數榮譽課程 (二)
MAT3253	Complex Variables	複變函數	3
MAT3300	Mathematical Modeling	數學建模	3
MAT4001	Numerical Analysis	數值分析	3
MAT4220	Partial Differential Equations	偏微分方程	3

[#] Remark:

Students can choose to take either Option A or Option B to fulfill the graduate requirement.
Students can choose to take either Option C or Option D to fulfill the graduate requirement.

Financial Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
ECO3121	Introductory Econometrics	計量經濟學導論	3
FIN3080	Investment Analysis and Portfolio Management	投資分析與投資組合管理	3
MAT2001	Honours Ordinary Differential Equations	常微分方程榮譽課程	3
Option A [#]	MAT2050	Mathematical Analysis	數學分析
Option B [#]	MAT2060	Honours Mathematical Analysis	數學分析榮譽課程
Option C [#]	MAT3040	Advanced Linear Algebra	高等線性代數
Option D [#]	MAT3042	Honours Linear Algebra II	線性代數榮譽課程 (二)
MAT3280	Probability Theory	概率論	3

MAT4001	Numerical Analysis	數值分析	3
STA2002H	Honours Probability and Statistics II	概率及統計榮譽課程(二)	3
STA4001	Stochastic Processes	隨機過程	3

Remark:

Students can choose to take either Option A or Option B to fulfill the graduate requirement.
Students can choose to take either Option C or Option D to fulfill the graduate requirement.

Mathematical Modeling and AI Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
AIE4001	Machine Learning and Application	機器學習及應用	3
CSC3100	Data Structures	數據結構	3
MAT2001	Honours Ordinary Differential Equations	常微分方程榮譽課程	3
Option A [#]	MAT2050	Mathematical Analysis	3
Option B [#]	MAT2060	Honours Mathematical Analysis	3
MAT2240	Applied Mathematics for AI	人工智能中的應用數學	3
MAT3007	Optimization	最優化	3
Option C [#]	MAT3040	Advanced Linear Algebra	3
Option D [#]	MAT3042	Honours Linear Algebra II	3
MAT3300	Mathematical Modeling	數學建模	3
MAT4001	Numerical Analysis	數值分析	3

Remark:

Students can choose to take either Option A or Option B to fulfill the graduate requirement.
Students can choose to take either Option C or Option D to fulfill the graduate requirement.

III. Major Elective courses

Pure Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
BIO1001	General Biology	普通生物學	3
CSC3001	Discrete Mathematics	離散數學	3
FMA4800	Financial Computation	金融計算	3
MAT3005	Abstract Algebra II	抽象代數(二)	3
MAT3007	Optimization	最優化	3
MAT3093	Fourier Analysis	傅立葉分析	3
MAT3220	Optimization II	最優化(二)	3
MAT3240	Numerical Linear Algebra	數值綫性代數	3
MAT3250	Introduction of Mathematical Game Theory	數學博弈論導論	3
MAT3280	Probability Theory	概率論	3
MAT3300	Mathematical Modeling	數學建模	3

MAT3350	Introduction to Information Theory	信息論導論	3
MAT4001	Numerical Analysis	數值分析	3
MAT4003	Number Theory	數論	3
MAT4004	Graph Theory	圖論	3
MAT4006	Introduction to Coding Theory	編碼理論導論	3
MAT4007	Introduction to Cryptography	密碼學導論	3
MAT4010	Functional Analysis	泛函分析	3
MAT4080	Modules and Representation Theory	模與表示論	3
MAT4400	Project	課題研究	3
MAT4500	Stochastic Differential Equations	隨機微分方程	3
MAT4600	Applied Category Theory	應用範疇論	3
MAT5110	Measure Theory and Integration	測度論與積分	3
MAT5120	Functional Analysis	泛函分析	3
MAT5140	Ordinary Differential Equations and Dynamical Systems	常微分方程與動力系統	3
MAT5210	Advanced Abstract Algebra I	高等抽象代數（一）	3
MAT5320	Riemannian Geometry	黎曼幾何	3
MAT6110	Partial Differential Equations I	偏微分方程（一）	3
MAT6115	Partial Differential Equations II	偏微分方程（二）	3
MAT6230	Lie groups and Lie algebras	李群與李代數	3
MAT6330	Algebraic Topology	代數拓撲	3
PHY4221	Quantum Mechanics	量子力學	3
STA4001	Stochastic Processes	隨機過程	3

Applied Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
BIM3001	Bioinformatics	生物信息學	3
BIO1001	General Biology	普通生物學	3
CHM2002	Physical Chemistry	物理化學	3
CSC3001	Discrete Mathematics	離散數學	3
CSC3002	C/C++ Programming	C/C++程序設計	3
CSC3100	Data Structures	數據結構	3
DDA3020	Machine Learning	機器學習	3
FMA4800	Financial Computation	金融計算	3
MAT3004	Abstract Algebra I	抽象代數（一）	3
MAT3093	Fourier Analysis	傅立葉分析	3
MAT3220	Optimization II	最優化（二）	3
MAT3240	Numerical Linear Algebra	數值綫性代數	3
MAT3250	Introduction of Mathematical Game Theory	數學博弈論導論	3
MAT3280	Probability Theory	概率論	3

MAT3350	Introduction to Information Theory	信息論導論	3
MAT4002	Introduction to Geometry and Topology	幾何與拓撲學導論	3
MAT4003	Number Theory	數論	3
MAT4004	Graph Theory	圖論	3
MAT4006	Introduction to Coding Theory	編碼理論導論	3
MAT4007	Introduction to Cryptography	密碼學導論	3
MAT4010	Functional Analysis	泛函分析	3
MAT4033	Differential Geometry	微分幾何	3
MAT4240	Numerical Methods for Differential Equations	微分方程數值解	3
MAT4400	Project	課題研究	3
MAT4500	Stochastic Differential Equations	隨機微分方程	3
MAT4600	Applied Category Theory	應用範疇論	3
MAT5140	Ordinary Differential Equations and Dynamical Systems	常微分方程與動力系統	3
MAT5620	Methods of Applied Mathematics	應用數學中的方法	3
MAT6110	Partial Differential Equations I	偏微分方程（一）	3
MAT6115	Partial Differential Equations II	偏微分方程（二）	3
MAT6610	Advanced Numerical Methods	高等數值方法	3
PHY2001	Electricity and Magnetism	電磁學	3
PHY3002	Electrodynamics I	電動力學（一）	3
PHY3110	Classical Mechanics I	理論力學（一）	3
PHY3201	Quantum Physics	量子物理	3
PHY4221	Quantum Mechanics	量子力學	3
PHY4260	Statistical Mechanics	統計力學	3
STA4001	Stochastic Processes	隨機過程	3

Financial Mathematics Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
BIO1001	General Biology	普通生物學	3
ECO2011	Basic Microeconomics	微觀經濟學基礎	3
ECO3410	Economics of Money and Financial Institutions	貨幣與金融機構經濟學	3
FIN2010	Financial Management	財務管理	3
FIN4110	Options and Futures	期權與期貨	3
FIN4120	Fixed Income Securities Analysis	固定收益證券分析	3
FMA4200	Financial Data Analysis	金融數據分析	3
FMA4800	Financial Computation	金融計算	3
MAT3006	Real Analysis	實分析	3
MAT3007	Optimization	最優化	3
MAT3220	Optimization II	最優化（二）	3

MAT3240	Numerical Linear Algebra	數值綫性代數	3
MAT3250	Introduction of Mathematical Game Theory	數學博弈論導論	3
MAT3300	Mathematical Modeling	數學建模	3
MAT4220	Partial Differential Equations	偏微分方程	3
MAT4240	Numerical Methods for Differential Equations	微分方程數值解	3
MAT4400	Project	課題研究	3
MAT4500	Stochastic Differential Equations	隨機微分方程	3
MAT6610	Advanced Numerical Methods	高等數值方法	3
MAT6710	Advanced Probability Theory and Mathematical Statistics	高等概率理論與數理統計	3
MAT6810	Advanced Financial Models	高等金融模型	3
RMS4001	Simulation Methods for Risk Management and Finance	金融及風險管理模擬方法	3
RMS4050	Stochastic Calculus for Finance and Risk	金融與風險之隨機微積分	3
RMS4060	Risk Management with Derivatives	風險管理及衍生品的應用	3
STA4004	Actuarial Science	精算學	3

Mathematical Modeling and AI Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
AIE3002	AI and Quantum Computing	人工智能與量子計算	3
BIM2005	Computational Biology	計算生物學	3
BIM3001	Bioinformatics	生物信息學	3
BIO1001	General Biology	普通生物學	3
BME3320	Biomedical Imaging	生物醫學影像	3
CSC3001	Discrete Mathematics	離散數學	3
CSC3002	C/C++ Programming	C/C++程序設計	3
DDA3020	Machine Learning	機器學習	3
DDA4210	Advanced Machine Learning	高等機器學習	3
DDA4250	Mathematical Introduction to Deep Learning	深度學習中的數學	3
ECE4513	Image Processing and Computer Vision	圖像處理和計算機視覺	3
ERG2010	AI Innovations for Science and Engineering	人工智能在科學與工程中的創新	3
FMA4800	Financial Computation	金融計算	3
MAT3006	Real Analysis	實分析	3
MAT3220	Optimization II	最優化(二)	3
MAT3240	Numerical Linear Algebra	數值綫性代數	3
MAT3250	Introduction of Mathematical Game Theory	數學博弈論導論	3
MAT3253	Complex Variables	複變函數	3

MAT3280	Probability Theory	概率論	3
MAT3350	Introduction to Information Theory	信息論導論	3
MAT4002	Introduction to Geometry and Topology	幾何與拓撲學導論	3
MAT4003	Number Theory	數論	3
MAT4004	Graph Theory	圖論	3
MAT4006	Introduction to Coding Theory	編碼理論導論	3
MAT4007	Introduction to Cryptography	密碼學導論	3
MAT4010	Functional Analysis	泛函分析	3
MAT4033	Differential Geometry	微分幾何	3
MAT4220	Partial Differential Equations	偏微分方程	3
MAT4240	Numerical Methods for Differential Equations	微分方程數值解	3
MAT4400	Project	課題研究	3
MAT4500	Stochastic Differential Equations	隨機微分方程	3
MAT4600	Applied Category Theory	應用範疇論	3
MAT6610	Advanced Numerical Methods	高等數值方法	3
MAT6630	AI for Scientific Computing	人工智能賦能科學計算	3
PHY2650	Computational Physics and AI Tools	計算物理與人工智能工具	2
STA4001	Stochastic Processes	隨機過程	3