

(Study Scheme - English)

Programme Title
Financial Engineering

Study Scheme

Applicable to students admitted in 2020-21

Major Programme Requirement

Studies in Financial Engineering are divided into TWO main streams and students are required to specialize in one of the streams:

- (1) Quantitative Finance; and
- (2) FinTech

Quantitative Finance Stream

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

	Units
1. School Package: ACT2111, CSC1001, 1002, ECO2011, FIN2010, 2020, MAT1001, 1002, 2040, STA2001	28
2. Required Courses: ECO3121, FIN3080, 4110, 4120, MAT2002, 3007, 3300, STA2002	24
3. Elective Courses: Six courses selected from the following: ACT4253, CSC3001, 3100, DDA2020, DMS3002, ECO3160, FIN3210, 4060, 4080, 4210, 4231, FMA4200, 4800, FTE4999, MAT3280, 4500, RMS4060, STA3010, 4001, 4003	18
Total:	70

FinTech Stream

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

	Units
1. School Package: ACT2111, CSC1001, 1002, ECO2011, FIN2010, 2020, MAT1001, 1002, 2040, STA2001	28

2. Required Courses:

CSC3001, 3100, ECO3121, FIN3080, 3210, FTE4560, MAT3007, STA2002 24

3. Elective Courses:

Six courses selected from the following: 18
ACT4253, CSC3150, 3170, 3180, 4008, DDA4210, EIE4007,
ERG3020, FIN4060, 4110, 4120, 4210, FMA4200, FTE2001,
4003, 4999, MKT4220, RMS4060, STA3010, 4003

Total: 70

Notes:

[a] Courses in School Package at 2000 and above level and all major required and major elective courses will be included in the calculation of Major GPA for honors classification.

(Study Scheme - Chinese)

課程名稱

金融工程

修讀辦法

二〇二〇至二一年度入學學生適用

主修課程要求

本課程分設兩項專修範圍，學生須選修其中一項專修範圍：

- (1) 量化金融；及
- (2) 金融科技。

量化金融專修範圍

學生須至少修畢以下科目共 70 學分：

1. 學院課程：

ACT2111, CSC1001, 1002, ECO2011, FIN2010, 2020, MAT1001, 1002, 2040, STA2001

學分

28

2. 必修科目：

ECO3121, FIN3080, 4110, 4120, MAT2002, 3007, 3300, STA2002

24

3. 選修科目：

從以下選修其中六科：

ACT4253, CSC3001, 3100, DDA2020, DMS3002, ECO3160, FIN3210, 4060, 4080, 4210, 4231, FMA4200, 4800, FTE4999, MAT3280, 4500, RMS4060, STA3010, 4001, 4003

18

共：

70

金融科技專修範圍

學生須至少修畢以下科目共 70 學分：

1. 學院課程：

ACT2111, CSC1001, 1002, ECO2011, FIN2010, 2020, MAT1001, 1002, 2040, STA2001

學分

28

2. 必修科目：

CSC3001, 3100, ECO3121, FIN3080, 3210, FTE4560, MAT3007, STA2002 24

3. 選修科目：

從以下選修其中六科： 18

ACT4253, CSC3150, 3170, 3180, 4008, DDA4210, EIE4007, ERG3020, FIN4060, 4110, 4120, 4210, FMA4200, FTE2001, 4003, 4999, MKT4220, RMS4060, STA3010, 4003

共： 70

註：

[a] 2000 及以上程度的學院課程和所有必修科目、選修科目將會計入主修科目之平均績點，並用以釐定學位等級。

(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 Engineering</u>		
	Recommended Course Pattern	Units
First Year of Attendance	1 st term School Package: ACT2111, ECO2011, MAT1001	9
	2 nd term School Package: CSC1001, 1002, FIN2010, MAT1002, STA2001	13
Second Year of Attendance	1 st term School Package: FIN2020, MAT2040 Major Required: ECO3121, STA2002 ^[1]	6 6 ^[1] / 3 ^[2]
	2 nd term Major Required: FIN3080, MAT2002 ^[1] , STA2002 ^[2] Major Elective(s): one course from Major Elective(s) ^[2]	6 3 ^[2]
Third Year of Attendance	1 st term Major Required: CSC3001 ^[2] , 3100 ^[2] , MAT3007, 3300 ^[1] Major Elective(s): one course from Major Elective(s) ^[1]	6 ^[1] / 9 ^[2] 3 ^[1]
	2 nd term Major Required: FIN4110 ^[1] , FTE4560 ^[2] Major Elective(s): one course from Major Elective(s)	3 3
Fourth Year of Attendance	1 st term Major Required: FIN4120 ^[1] , FIN3210 ^[2] Major Elective(s): two courses from Major Elective(s)	3 6
	2 nd term Major Elective(s): two courses from Major Elective(s)	6
Total (Major Requirement including School Package):		70

Explanatory Notes:

[1] Applicable to Quantitative Finance Stream only.

[2] Applicable to FinTech Stream only.

(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。

金融工程主修課程要求		
	修課推介	學分
第一修業學年	第一學期 學院課程: ACT2111, ECO2011, MAT1001	9
	第二學期 學院課程: CSC1001, 1002, FIN2010, MAT1002, STA2001	13
第二修業學年	第一學期 學院課程: FIN2020, MAT2040 主修必修科目: ECO3121, STA2002 ^[1]	6 6 ^[1] / 3 ^[2]
	第二學期 主修必修科目: FIN3080, MAT2002 ^[1] , STA2002 ^[2] 主修選修科目: 從主修選修科目選修一科 ^[2]	6 3 ^[2]
第三修業學年	第一學期 主修必修科目: CSC3001 ^[2] , 3100 ^[2] , MAT3007, 3300 ^[1] 主修選修科目: 從主修選修科目選修一科 ^[1]	6 ^[1] / 9 ^[2] 3 ^[1]
	第二學期 主修必修科目: FIN4110 ^[1] , FTE4560 ^[2] 主修選修科目: 從主修選修科目選修一科	3 3
第四修業學年	第一學期 主修必修科目: FIN4120 ^[1] , FIN3210 ^[2] 主修選修科目: 從主修選修科目選修兩科	3 6
	第二學期 主修選修科目: 從主修選修科目選修兩科	6
合共 (主修要求包括學院課程):		70

註：

- [1] 只適用於量化金融專修範圍。
[2] 只適用於金融科技專修範圍。

Course List

I. School Package from the School of Management and Economics

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
ACT2111	Introductory Financial Accounting	財務會計導論	3
ECO2011	Basic Microeconomics	微觀經濟學基礎	3
FIN2010	Financial Management	財務管理	3
FIN2020	Foundation of Finance	金融基礎	3

II. School Package from the School of Science and Engineering

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
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
MAT1001	Calculus I	微積分（一）	3
MAT1002	Calculus II	微積分（二）	3
MAT2040	Linear Algebra	線性代數	3
STA2001	Probability and Statistics I	概率及統計（一）	3

III. Major required courses

Quantitative Finance 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
FIN4110	Options and Futures	期權與期貨	3
FIN4120	Fixed Income Securities Analysis Computational Finance	固定收益證券分析	3
MAT2002	Ordinary Differential Equations	常微分方程	3
MAT3007	Optimization	最優化	3
MAT3300	Mathematical Modeling	數學建模	3
STA2002	Probability and Statistics II	概率及統計（二）	3

FinTech Stream

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
CSC3001	Discrete Mathematics	離散數學	3
CSC3100	Data Structures	數據結構	3
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
FIN3210	Fintech Theory and Practice	金融科技理論與實踐	3
FTE4560	Basic Machine Learning	機器學習之基礎課程	3
MAT3007	Optimization	最優化	3

STA2002	Probability and Statistics II	概率及統計（二）	3
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IV. Major elective courses

Course Code	Course Title (English)	Course Title (Chinese)	Unit(s)
ACT4253	Legal Environment, Business Ethics and CSR in China	中國法律環境、商業道德與企業社會責任	3
CSC3001 ^[1]	Discrete Mathematics	離散數學	3
CSC3100 ^[1]	Data Structures	數據結構	3
CSC3150 ^[2]	Operating System	操作系統	3
CSC3170 ^[2]	Database System	數據庫系統	3
CSC3180 ^[2]	Fundamentals of Artificial Intelligence	人工智能之基本原理	3
CSC4008 ^[2]	Techniques for Data Mining	數據挖掘技術	3
DDA2020* ^[1]	Machine Learning	機器學習	3
DDA4210 ^[2]	Advanced Machine Learning	高等機器學習	3
DMS3002 ^[1]	Applied Probability and Stochastic Process in Business	應用概率和隨機過程	3
ECO3160 ^[1]	Game Theory	博弈論與商業戰略	3
EIE4007 ^[2]	Computer and Network Security	計算機與網絡安全	3
ERG3020 ^[2]	Web Analytics and Intelligence	網絡分析與智能	3
FIN3210 ^[1]	Fintech Theory and Practice	金融科技理論與實踐	3
FIN4060	Financial Markets in China and the World	中國與世界的金融市場	3
FIN4080 ^[1]	Behavioral Finance	行為金融學	3
FIN4110 ^[2]	Options and Futures	期權與期貨	3
FIN4120 ^[2]	Fixed Income Securities Analysis	固定收益證券分析	3
FIN4210	Corporate Finance	公司金融	3
FIN4231 ^[1]	Asset Pricing	資產定價	3
FMA4200	Financial Data Analysis	金融數據分析	3
FMA4800 ^[1]	Financial Computation	金融計算	3
FTE2001 ^[2]	FinTech Regulation and Legal Policy	金融科技規則與法律	3
FTE4003 ^[2]	Data Mining for FinTech	數據挖掘技術	3
FTE4999	Internship	金融工程實習	3
MAT3280 ^[1]	Probability Theory	概率論	3
MAT4500 ^[1]	Stochastics Differential Equations	隨機微分方程	3
MKT4220 ^[2]	Big Data Marketing	大數據營銷	3
RMS4060	Risk Management with Derivatives	風險管理及衍生品的應用	3
STA3010	Regression Analysis	回歸分析	3
STA4001 ^[1]	Stochastic Process	隨機過程	3
STA4003	Time Series	時間序列	3

* The course title of CSC4020 is Fundamental of Machine Learning for students who study the course before 2021-22 term 1. For students who study this course from 2021-22 term 1, the course code is DDA2020 and the course title is Machine Learning.

在 2021-22 學年第一學期前修讀 CSC4020，科目名稱為「機器學習之基礎課程」。在 2021-22 學年第一學期及以後修讀該科目，科目代碼及名稱為「DDA2020 機器學習」。