資訊管理與財務金融學系財務金融碩士班

110 學年度

最低修業年限	一年
應修學分數	**財務工程**組、**財務決策**組：38 學分 (不含先修課程) **資料科學**組：31 學分 (含個別研究 2 學分，不含先修課程)

應修課程	◆ **先修課程：**
	❖ 財務工程組/財務決策組：經濟學、會計學、統計學各 3 學分 (得憑大學以上成績單證明或其他同等級課程相關證明提出申請，可免修或改修相關課程)。
	❖ 資料科學組：資料結構、程式設計、經濟學、統計學(或機率學) 各 3 學分 (得憑大學以上成績單證明或其他同等級課程相關證明提出申請，可免修或改修相關課程)。
	
	◆ **3 組共同必修課程(共 2 學分)**：財金理論與實務(1 學分)、碩士論文研究(1 學分)。
	◆ **各組必/選修課程：**
	甲組、財務工程組：(共計 36 學分)
	  1. 必修(共 21 學分)：財務管理、投資學、期貨與選擇權、財務計量經濟學、金融機構與市場、財務數學、衍生性商品理論。
	  2. 選修課程(共 15 學分) (外系所課程至多採計 6 學分，選修外系所開設課程且欲列計畢業學分者，需於當學期加退選結束之前繳交選修外所課程認定申請表；在職專班課程不得列計畢業學分。)
	
	乙組、財務決策組：(共計 36 學分)
	  1. 必修(共 24 學分)：財務管理、投資學、期貨與選擇權、財務計量經濟學、金融機構與市場、財務報表分析、國際財務管理、公司理財。
	  2. 選修課程(共 12 學分) (外系所課程至多採計 6 學分，選修外系所開設課程且欲列計畢業學分者，需於當學期加退選結束之前繳交選修外所課程認定申請表；在職專班課程不得列計畢業學分。)
	
	丙組、資料科學組：(共計 29 學分)
	  1. 財務類課程選 3 門 (共 9 學分)。
	  2. 資訊類課程選 4 門 (共 12 學分): 資訊安全、資料科學、人工智慧與金融科技實務、機器學習與金融科技、資料探勘與商業智慧、下列資訊相關課程(不列計外系所學分): (1) 機器學習 (2) 深度學習 (3) 資料探勘 (4) 網路安全。
	  3. 個別研究(共 2 學分)：一年級上、下學期必修「個別研究」課程，上、下學期各 1 學分。
	  4. 選修課程 2 門(共 6 學分)。(外系所課程至多採計 6 學分，選修外系所開設課程且欲列計畢業學分者，需於當學期加退選結束之前繳交選修外所課程認定申請表；在職專班課程不得列計畢業學分。)

備註	1. 僑生、陸港澳學生以及外籍生，需於錄取後至第一學期開學 1 週內完成選組。 2. 本班甲組與乙組可互相轉組，但甲組或乙組不能轉入丙組；丙組不得轉入甲組或乙組。

Department of Information Management and Finance
Graduate Program of Finance
Academic Requirements for Master Students
academic year 2021

Minimum Period of Study	One year
Minimum Graduation Credits	**Financial Engineering / Financial Decision**: 38 credits (excluding preliminary courses) **Data Science**: 31 credits (including 2 credits of "Independent study"; excluding preliminary courses)
Prerequisite Courses and Core Courses	◆ Preliminary courses: ❖ **Major in Financial Engineering / Financial Decision**: Economics, Accounting, and Statistics, 3 credits for each subject (Students may apply to exempt the courses or change to other courses according to their transcriptions of university level or above, or certificates of other programs at the same level.) ❖ **Major in Data Science**: Data Structure, Programming, Economics, and Statistics (or Probability), 3 credits for each subject (Students may apply to exempt the courses or change to other courses according to their transcriptions of university level or above, or certificates of other programs at the same level.) ◆ **Common Core Courses (2 credits)**: Theory and Practice in Finance (1 credit), Thesis (1 credit) ◆ **Required/Elective Courses for Each Major**: **A. Financial Engineering (36 credits):** 1. <u>Required Courses (21 credits)</u> Financial Management (3 credit), Investment (3 credit), Futures and Options (3 credit), Financial Econometrics (3 credit), Financial Institutions and Markets (3 credit), Financial Mathematics (3 credit), Theory of Derivatives (3 credit) 2. <u>Elective Courses (15 credits)</u> ➢ At most 6 credits of the courses related to financial field offered by other departments or graduate institutes can be adopted. ➢ For graduation credits counted permission, students need to hand out the application form before the course registration due date of the semester. ➢ Courses offed by the part-time master program cannot count for graduation credits. **B. Financial Decision (36 credits):** 1. <u>Required Courses (24 credits)</u> Financial Management (3 credit), Investment (3 credit), Futures and Options (3 credit), Financial Econometrics (3 credit), Financial Institutions and Markets (3 credit), Financial Statement Analysis (3 credit), Multinational Financial Management (3 credit), Corporate Finance (3 credit) 2. <u>Elective Courses (12 credits)</u> ➢ At most 6 credits of the courses related to financial field offered by other departments or graduate institutes can be adopted. ➢ For graduation credits counted permission, students need to hand out the application form before the course registration due date of the semester. ➢ Courses offed by the part-time master program cannot count for graduation credits.

Prerequisite Courses and Core Courses	**C. Data Science (29 credits):**
	1. Financial field courses (9 credits): at least 3 Financial field courses out of courses offered by our department.
	2. Information field courses (12 credits): at least 4 Information field courses out of courses listed below.
	Information Security, Data Science, Practices of Artificial Intelligence and Financial Technology, Machine Learning and FinTech, Data Mining and Business intelligence, following courses related to information field offered by University System of Taiwan(UST) (will be regarded as the courses offered by our department): (1) Machine Learning, (2) Deep Learning, (3) Data Mining, (4) Cyber Security.
	3. Independent Study (2 credits): Compulsory for the first and second semesters of the first grade, 1 credit for each semester.
	4. Elective Courses (6 credits)
	  ➢ At most 6 credits of the courses related to financial field offered by other departments or graduate institutes can be adopted.
	  ➢ For graduation credits counted permission, students need to hand out the application form before the course registration due date of the semester.
	  ➢ Courses offed by the part-time master program cannot count for graduation credits.

Notes	1. Overseas Chinese students, Mainland China students, and Foreign students must complete the major selection after admission and before end of the first week in the first semester. 2. Group A and Group B can be transferred to each other, but Group A or B cannot be transferred to Group C; Group C cannot be transferred to Group A or B.

*The Regulations were drawn up in Chinese and translated into English. In the event of any discrepancy between the two versions, the original Chinese version shall prevail.

資訊管理與財務金融學系財務金融博士班

110 學年度(110.12 修訂)

最低修業年限	二年
應修學分數	<u>35 學分</u>（不含先修課程）
直升博士生 應修學分數	<u>41 學分</u>（不含先修課程）

● 先修課程：分為以下兩類，符合其中一類即可。
1. 經濟學、會計學、統計學各 6 學分。（得憑大學以上成績單證明或其他同等級課程相關證明提出申請，可免修或改修相關課程）
2. 經濟學、資料結構、演算法、程式設計各 3 學分。（得憑大學以上成績單證明或其他同等級課程相關證明提出申請，可免修或改修相關課程）

● 課程結構：

應修課程

類別	課程名稱	學分數	備註
基礎課程 （共 9 學分）	財務管理	3 學分	基礎課程 6 選 3
	期貨與選擇權	3 學分	
	投資學	3 學分	
	衍生性商品理論	3 學分	
	財務計量經濟學	3 學分	
	財務數學	3 學分	
核心課程 （共 11 學分）	財務理論(博)	3 學分	
	高等財務計量(博)	3 學分	
	博士班論文研討 A	1 學分	❖ **財金組**：博一至博三上必修，需修滿 5 學分，超過 5 學分者不予採計。 ❖ **AI 組**：博一必修，需修滿 2 學分，超過 2 學分者不予採計。
	博士班論文研討 B	0 學分	❖ **財金組**：博四前為必修。若博四結束前未修滿 3 次，則需補修。**（本規定追溯適用財金博士班全體在學學生）** ❖ **AI 組**：博二上至博二下必修。
	人工智慧理論與實作	3 學分	本課程為 AI 組必修；可以財金博委會審查通過之其他相關課程取代。

類別		課程名稱	學分數	備註
專業課程 （財金組共6學分；AI組共3學分）		財務決策專題(博)	3學分	❖ **財金組**：前4個專題4選2。 ❖ **AI組**：專業課程5選1。
		財務工程專題(博)	3學分	
		金融機構專題(博)	3學分	
		財務經濟專題(博)	3學分	
		數據科學專題	3學分	
應修課程	**其他選修課程** （財金組共9學分；AI組共12學分）	個別研究	1學分	❖ 「個別研究」課程：需擇定指導教授後方可選修。 ❖ **財金組**：本課程至多採計6學分。 ❖ **AI組**：本課程至多採計3學分。
		財金組：其他選修課程。 AI組可選修下列本校開設之其他相關課程： ➢ 資訊安全 ➢ 機器學習與金融科技 ➢ 資料探勘 ➢ 統計方法 ➢ 數據科學概論與軟體實務 ➢ 巨量資料分析技術與應用 ➢ 機器學習(演算法與應用) ➢ 平行程式設計 ➢ 資料視覺化與視覺分析 ➢ 統計計算 ➢ 多變量分析 ➢ 財務時間序列分析 ➢ 或其他由財金博委會審核通過之AI相關課程		❖ **財金組**：外系所課程至多採計6學分(不含由財金博委會通過之相關課程)。 ❖ **AI組**：可修習左述本校開設之其他AI相關課程。 ❖ 表列之各項課程如有修習超過必修之學分數者，得列計為選修課程。 ❖ 本班博士生如欲修習非本系開授之課程且列入畢業學分者，需於修課當學期開學之前提出申請，並經由財金博委會審查通過；經由財金博委會審查通過之課程，視同本系開課，不列計外系所課程學分。

➢ 其他事項：本班之外籍生在財金博委會同意下，可申請至臺灣聯合大學系統修讀應修課程中的「基礎課程」以及「其他課程」；申請通過後，其所修讀臺灣聯合大學系統之課程，可視同本系開設之課程，但最多採計15學分。

Department of Information Management and Finance
Graduate Program of Finance
Academic Requirements for Doctoral Students

academic year 2021

minimum periods	2 years
minimum graduation credits	35 credits (excluding preliminary courses)
minimum graduation credits of students admitted to the PhD program from MA program	41 credits (excluding preliminary courses)

Courses	● Preliminary Course: Divided into following two categories, students must need to meet one of them. (1) Economics, Accountings, and Statistics, 6 credits for each subject (Students may apply to exempt the courses or change to other courses according to their transcriptions of university level or above, or certificates of other programs at the same level.) (2) Economics, Data Structure, Algorithms, and Programming, 3 credits for each subject (Students may apply to exempt the courses or change to other courses according to their transcriptions of university level or above, or certificates of other programs at the same level.) ● Course structure:

Type	Title	Credits	Remarks
Basic Courses (9 credits in total)	Financial Management	3	Basic Courses (3 out of 6)
	Futures and Options	3	
	Investment	3	
	Theory of Derivatives	3	
	Financial Econometrics	3	
	Financial Mathematics	3	
Core Courses (11 credits in total)	Financial Theory	3	
	Advanced Financial Econometrics	3	
	Seminar in Finance for Doctoral Students A	1	**Finance group:** The required courses should be fulfilled with 5 credits in total from the 1st academic year to the 1st semester of the 3rd academic year. Credits over 5 are not adopted. **AI group:** The required courses should be fulfilled with 2 credits in total in the 1st academic year. Credits over 2 are not adopted.
	Seminar in Finance for Doctoral Students B	0	**Finance group:** The course is required from the 2nd semester of the 3rd academic year to the 6th academic year. **AI group:** The course is required in the 2nd academic year.
	Practices of Artificial Intelligence and Financial Technology	3	Required course of **AI group**; can be replaced with other courses that approved by the IOF PhD Program Committee.

	Type	Title	Credits	Remarks
	Professional Courses (**Finance group:** 6 credits in total；**AI group:** 3 credits in total)	Special Topics on Corporate Finance	3	**Finance group:** 2 out of first 4 courses **AI group:** 1 out of 5 courses
		Special Topics on Financial Engineering	3	
		Seminar on Financial Institutions	3	
		Special Topics in Financial Economics	3	
		Data Science Project	3	
	Other Elective Courses (**Finance group:** 9 credits in total；**AI group :** 12 credits in total)	Independent Study	1	The course, "Independent Study," can be selected by students who has determined their advisors only. **Finance group:** At most 6 credits are adopted. **AI group:** At most 3 credits are adopted.
		1. All Required/Elective Courses offered by our department. 2. Other related courses listed below offered by University System of Taiwan (UST) (will be regarded as the courses offered by our department) ➢ Information Security ➢ Machine Learning and FinTech ➢ Data Mining ➢ Statistical Methods ➢ Introduction to Data Science and Software Practice ➢ Big Data Analytics Techniques and Applications ➢ Machine Learning (Algorithm and Its Application) ➢ Parallel Programming ➢ Data Visualization and Visual Analytics ➢ Statistical Computing ➢ Multivariate Analysis ➢ Financial Time Series Analysis ➢ Other courses that approved by the IOF PhD Program Committee		➢ At most 6 credits of the courses in financial field offered by other departments or graduate institutes can be adopted. (other courses that approved by the IOF PhD Program Committee are not included) ➢ All listed courses can count as elective credits if taken more than the required credits. ➢ If students who want to take the courses offered by other departments or graduate institutes, they need to applied before the semester begin and must be approved by the IOF PhD Program Committee. Courses approved by the IOF PhD Program Committee will be regarded as the courses offered by our department.

● Under the approval of IOF PhD Program Committee, the foreign students can study the "basic courses" and "other courses" given by the University System of Taiwan (UST) and it will be regarded as the courses offered by our department, but at most 15 credits of the courses can be adopted.

*Applicable also to students admitted before academic year 2021 retrospectively under the approval of student's advisor or the chairman in financial field.

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