

## Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	FINANCIAL ENGINEERING SEMINAR	Instructor	CHANG, LI-HAN
Course Class	TLBBM1A MASTER'S PROGRAM, DEPARTMENT OF BANKING AND FINANCE (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education		
D e p a r t m e n t a l   A i m   o f   E d u c a t i o n			
In full and advanced financial courses to cultivate the international professional financial talents with independent analysis, judgement, and problem solve abilities.			
Subject Departmental core competences			
A. Cultivate advanced knowledge of financial theory.(ratio:30.00) B. Increase the skill of applied theory and practice.(ratio:10.00) C. Increase the ability of logical deduction.(ratio:5.00) D. Learning and use of financial research method.(ratio:10.00) E. Increase the ability to pass the exam of advanced financial professional certificate. (ratio:15.00) F. To have the potential of future advanced academic study.(ratio:30.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:30.00) 6. A cheerful attitude and healthy lifestyle. (ratio:5.00) 7. A spirit of teamwork and dedication. (ratio:10.00) 8. A sense of aesthetic appreciation. (ratio:5.00)			

Course Introduction	This course aims to introduce derivatives (Forwards, Futures, Swaps, and Options), asset pricing models, and option pricing models in the financial markets and financial risk management. Additionally, it will establish concepts in financial engineering and train students in reading academic journal articles.			
<p><b>The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.</b></p> <p>Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.</p> <p>I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.</p> <p>II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.</p> <p>III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.</p>				
No.	Teaching Objectives			objective methods
1	Understand the application of financial engineering in both academic and practical fields.			Cognitive
The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment				
No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Discussion	Testing, Discussion(including classroom and online), Report(including oral and written)
Course Schedule				
Week	Date	Course Contents		Note
1	114/09/15 ~ 114/09/21	Introduction		
2	114/09/22 ~ 114/09/28	Mechanics of futures markets		
3	114/09/29 ~ 114/10/05	Hedging strategies using futures		
4	114/10/06 ~ 114/10/12	Interest rates		

5	114/10/13 ~ 114/10/19	Determination of forward and futures prices	
6	114/10/20 ~ 114/10/26	Mechanics of options markets	
7	114/10/27 ~ 114/11/02	Properties of stock options	
8	114/11/03 ~ 114/11/09	Midterm exam	
9	114/11/10 ~ 114/11/16	Trading strategies involving options	
10	114/11/17 ~ 114/11/23	Binomial trees	
11	114/11/24 ~ 114/11/30	Wiener process and Ito' s lemma	
12	114/12/01 ~ 114/12/07	The Black-Scholes-Merton model	
13	114/12/08 ~ 114/12/14	The Black-Scholes-Merton model	
14	114/12/15 ~ 114/12/21	Presentation	
15	114/12/22 ~ 114/12/28	Presentation	
16	114/12/29 ~ 115/01/04	Final exam	
17	115/01/05 ~ 115/01/11	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	
18	115/01/12 ~ 115/01/18	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	
Key capabilities		self-directed learning Problem solving	
Interdisciplinary		STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)	
Distinctive teaching			
Course Content		Logical Thinking	

Requirement	
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks Name of teaching materials: Options, Futures, and Other Derivatives, by John C. Hull, 11th edition, 2022.
Grading Policy	<p>◆ Attendance : 10.0 %    ◆ Mark of Usual : 30.0 %    ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam : 30.0 %</p> <p>◆ Other ( ) : %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="https://web2.ais.tku.edu.tw/csp">https://web2.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a>.</p> <p>※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>