Course Title	FINANCIAL ENGINEERING	Instructor	HSUAN-LING CHANG
Course Class	TLBAB4A DEPARTMENT OF BANKING AND FINANCE DIVISION OF GLOBAL FINANCIAL MANAGEMENT (ENGLISH-TAUGHT PROGRAM),	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	4A SDG4 Quality education SDG8 Decent work and economic growth		

Departmental Aim of Education

Ⅰ. Learning and instanding international financial theory.

Ⅱ. Learn to plan the future.

Ⅲ. Enhance the ability of practical analysis.

Ⅳ. Increase the team research ability.

Ⅴ. Master the international financial pulsation.

Ⅵ. Cultivate morality and global civilization.

Subject Departmental core competences

A. The student to have a basic knowledge of international financial management theory and practice.(ratio:35.00)

B. To have a good grounding of relevant financial laws.(ratio:10.00)

C. To understand the basic moral principles within the international financial industry. (ratio:20.00)

D. To have a global perspective of the subject and a basic command of foreign language abilities.(ratio:15.00)

E. To obtain international professional qualifications that will aid their future career. (ratio:10.00)

F. To obtain a basic ability to examine domestic and global financial situations.(ratio:10.00)

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:5.00)

5. Independent thinking. (ratio:30.00)

6. A cheerful attitude and healthy lifestyle. (ratio:10.00)

7. A spirit of teamwork and dedication. (ratio:5.00)

8. A sense of aesthetic appreciation. (ratio:10.00)

Course Introduction	The major goal of this course is to learn how to solve many pricing problems for derivative contracts by developing analytic formulae or computer programs (Excel VBA or Python). I assume that students are equipped with the basic knowledge in Finance, especially that about derivatives. Therefore, students should already learn the courses of Futures and Options or other similar courses before. This course will focus on extensive knowledge, such as the stochastic process, the option pricing models, various numerical techniques, the option hedging strategies, etc.

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

 I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of
          the course's veracity, conception, procedures, outcomes, etc.
II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal,
          morals, attitude, conviction, values, etc.
III.Psychomotor: Emphasis upon the study of the course's physical activity and technical
          manipulation.

No.	Teaching Objectives	objective methods
1	For students who complete the course will have, 1.The extended knowledge of financial engineering 2. Programming ability 3. Understand various option pricing model 4. Know how to use various numerical techniques to access the derivative value	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, Publication	Study Assignments, Discussion(including classroom and online), Report(including oral and written)

Course Schedule			
Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Introduce the course and the definition of derivatives	
2	114/02/24 ~ 114/03/02	Mechanics of futures markets	
3	114/03/03 ~ 114/03/09	Mechanics of futures markets	
4	114/03/10 ~ 114/03/16	Mechanics of option markets	
5	114/03/17 ~ 114/03/23	Property of stock option	
6	114/03/24 ~ 114/03/30	Trading strategy involving options	
7	114/03/31 ~ 114/04/06	Binomial tree and excel vba	
8	114/04/07 ~ 114/04/13	Wiener process	
9	114/04/14 ~ 114/04/20	Midterm Exam	
10	114/04/21 ~ 114/04/27	Wiener process	
11	114/04/28 ~ 114/05/04	The Black-Scholes-Merton model	
12	114/05/05 ~ 114/05/11	The Black-Scholes-Merton model	
13	114/05/12 ~ 114/05/18	Final report and presentation	
14	114/05/19 ~ 114/05/25	Final report and presentation	
15	114/05/26 ~ 114/06/01	Graduate Exam/Graduate Assessment Week (teachers can adjust the week as needed)	
16	114/06/02 ~ 114/06/08		
17	114/06/09 ~ 114/06/15		
18	114/06/16 ~ 114/06/22		

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	Learning technologies (such as AR/VR,etc.) incorporated to physical courses
Course Content	Computer programming or Computer language (students have hands-on experience in related projects)
Requirement	I assume that students are equipped with the basic knowledge in Finance, especially that about derivatives.
Textbooks and Teaching Materials	Self-made teaching materials:Python material Using teaching materials from other writers:Textbooks
References	Professional Financial Computing Using Excel and VBA Donny C. F. Lai, Humphrey K. K. Tung, Michael C. S. Wong, Stephen Ng 應用大數據實戰(期貨與選擇權)，作者-李沃牆.黃淑菁，出版社-新陸書局，出版日期：2018/02/06，ISBN：9789869565240
Grading Policy	◆ Attendance： 25.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 20.0 % ◆ Final Exam： 5.0 % ◆ Other〈Final report/oral〉：30.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**