

TamKang University
Departement of Banking and Finance
Fall 2006

Introduction to Financial Engineering

Instructor

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Introduction

This is a two-credit one-semester course to introduce financial engineering. We will focus on plain vanilla options. Most time will be devoted to three main topics in financial engineering: tree models, calibrations, and Monte Carlo simulations. Students will take advantage of these techniques in group projects. Programming ability, such as Matlab, C/C++, or VBA, is a plus in this course, but not required.

Students are expected to have knowledge of time value of money, present value, and future value. Attendants should also be familiar with calculus and statistics. **Moreover, students are supposed to either have taken the required course on options or take it concurrently.**

Textbook

◇ 財務工程與EXCEL VBA的應用-選擇權評價理論之實作 ◇			
類別	證券基金會叢書		
定價	560 元	年份	2005
書碼	X458	ISBN	9867737490
作者	董夢雲	譯者	
版次	第1版	裝訂	平裝
教學配件			



Course Work & Course Grade

Class participation	10%
Group project 1 (Binomial Tree Model)	30%
Group project 2 (Volatility)	30%
Final exam	30%
Bonus points (Class presentations)	5%

There will be two group projects. Due days are scheduled in Course Plan. The first project is to price plain vanilla options with implementing binomial tree models. The next is to calibrate implied volatility from market data. Coding ability will

be helpful to carry out these projects. However, I will also provide spreadsheets in Microsoft Excel so that students without programming knowledge can implement these projects too. The final examination will be on the concepts and results of projects, not on computational issues.

Course Plan

Week	Date	Topics	Reading	Activities
Week 1	9/12	Introductions		Questionnaire
Week 2	9/19	Options		
Week 3	9/26	Binomial Trees(I)	Ch 9	
Week 4	10/3	Binomial Trees(II)	Ch 9	Group List
Week 5	10/10	(No Class)		
Week 6	10/17	Binomial Trees(III)	Ch 9	
Week 7	10/24	Black-Scholes Model(I)	Ch 4	
Week 8	10/31			Project 1 Due and Presented
Week 9	11/7	Black-Scholes Model(II)	Ch 4	
Week 10	11/14	(No Class)		Midterm Exam
Week 11	11/21	Volatility Issues(I)	Ch 5	
Week 12	11/28	Volatility Issues(II)	Ch 5	
Week 13	12/5	Volatility Issues(III)	Ch 5	
Week 14	12/12			Project 2 Due and Presented
Week 15	12/19	Monte Carlo Simulation	Ch 10	
Week 16	12/26	Review		
Week 17	1/2	(No Class)		
Week 18	1/9			Final Exam

Course Plan Chart

