

THE UNIVERSITY OF HONG KONG
FACULTY OF BUSINESS AND ECONOMICS
School of Economics and Finance

FINA0404/ FINA3351 – Spreadsheet Financial Modeling

GENERAL INFORMATION	
<p>Instructor: Dr. Jinghan MENG</p> <p>Email: mengj@hku.hk</p> <p>Office: : K. K. Leung 1001</p> <p>Phone: 2219 4176</p> <p>Consultation times: TBA</p> <p>Tutor: TBA</p> <p>Lecture:</p> <p>FINA0404A/FINA3351A: Semester 1, Monday 14:30pm – 17:20pm in KKLG110</p> <p>FINA0404B/FINA3351B: Semester 2, Monday 14:30pm – 17:20pm in MW322</p> <p>Pre-requisites:</p> <ol style="list-style-type: none"> 1. ECON0701/ ECON2280 Introductory econometrics; and 2. FINA0301/ FINA2322 Derivatives; and 3. FINA2802/ FINA2320 Investments and portfolio analysis OR STAT2309/ STAT3609 The statistics of investment risk; and 4. CSIS1117/ COMP1117 Computer programming I OR ENGG1002/ ENGG1111 Computer programming and applications <p>Co-requisites: None</p> <p>Mutually exclusive: None</p> <p>Course Website: MOODLE via HKU portal</p> <p>Other important details: TBA</p>	
COURSE DESCRIPTION	
<p>This course studies the design and implementation of computer programs for financial modeling using spreadsheets and structured programming techniques. The course will focus on developing skills in translating financial models into spreadsheets and programs using Microsoft Excel and Visual Basic for Applications (VBA), examining popular financial and investment models, integrating spreadsheet functionalities, programming, and interfaces in financial applications, and hands-on experience in designing, coding, and debugging computer programs.</p>	
COURSE OBJECTIVES	
<ol style="list-style-type: none"> 1. To understand basic and advanced financial models from both conceptual and computational perspectives. 2. To develop skills in developing financial models to solve financial problems and solving them with Microsoft Excel and VBA. 3. To utilize and integrate spreadsheet functionalities, programming, and interfaces in financial applications. 4. To develop skills in designing, coding, and debugging computer programs. 	
COURSE LEARNING OUTCOMES	
Course Learning Outcomes	Aligned Faculty Goals
CLO1. Understand the basic features of Excel spreadsheet functions.	Goal 1
CLO2. Analyze and provide optimal solutions for the financial problems related to firms' cash flows, operations, and financial leverage.	Goal 1, 2, 3, 4

CLO3. Understand the basic features of VBA.	Goal 1
CLO4. Analyze and assess the fair values of various securities including stocks and bonds	Goal 1, 2, 3, 4
CLO5. Understand the pricing tools for European and American options, including Black-Scholes option formula and binomial trees.	Goal 1, 2, 3, 4
CLO6. Understand the basic features of the foreign exchange markets and develop basic knowledge in relevant analysis	Goal 1, 2, 3, 4

COURSE TEACHING AND LEARNING ACTIVITIES

Course Teaching and Learning Activities	Expected contact hour	Study Load (% of study)
T&L1. Lectures	36 hours	27.27%
T&L2. Assignments	36 hours	27.27%
T&L3. Tutorials	12 hours	9.09%
T&L4. Self-study	48 hours	36.36%
Total	132 hours	100%

Assessment Methods	Brief Description (Optional)	Weight	Aligned Course Learning Outcomes
A1. Participations		10%	CLO 1, 2, 3, 4, 5, 6
A2. Assignments		40%	CLO 1, 2, 3, 4, 5, 6
A3. Examinations		50%	CLO 1, 2, 3, 4, 5, 6
	Total	100%	

STANDARDS FOR ASSESSMENT

Course Grade Descriptors

A+, A, A-	Exhibited high level of understanding of the course materials through dedicated participations, completion of all assignments with almost perfect scores, and excellent performance in final examination.
B+, B, B-	Exhibited reasonably high level of understanding of the course materials through full participations, completion of all assignments with good scores, and good performance in final examination.
C+, C, C-	Exhibited fair level of understanding of the course materials through satisfactory participations, completion of most assignments with acceptable scores, and acceptable performance in final examination.
D+, D	Exhibited limited level of understanding of the course materials through limited participations, completion of only a part of assignments with acceptable scores, and acceptable performance in final examination.
F	Exhibited low level of understanding of the course materials through rare participations, completion of only a part of assignments with unacceptable scores, and poor performance in final examination.

Assessment Rubrics for Each Assessment (Same as Course Grade Descriptors)

A1 Participations

A+ A A-	B+ B B-	C+ C C-	D+ D	F
Extremely well prepared for lectures and attended all tutorials.	Reasonably prepared for lectures and attended all tutorials.	Not well prepared for lectures and attended most tutorials.	Not well prepared for lectures and attended only a part of tutorials.	No preparation for lectures and attended only a part of tutorials.

A2 Assignments

A+ A A-	B+ B B-	C+ C C-	D+ D	F
Submitted all assignments with almost perfect accuracy.	Submitted all assignments with good accuracy.	Submitted assignments with fair level accuracy.	Submitted assignments with acceptable accuracy.	Submitted poorly written homework or no submission.

A3 Examinations

Examinations may include three types of questions: multiple choice, calculation problems, and essay questions. Multiple choice and calculation problems are graded according to the marks assigned to each question. Essay questions are graded according to the following criteria:

A+ A A-	B+ B B-	C+ C C-	D+ D	F
<ul style="list-style-type: none"> Concise and to-the-point answer Demonstrate a comprehensive understanding of all relevant knowledge Handling questions professionally 	<ul style="list-style-type: none"> Well-written, correct answer Demonstrate a good understanding of all relevant knowledge Handling questions in a logical way 	<ul style="list-style-type: none"> Acceptable answer Demonstrate a reasonable understanding of related concepts Handling questions in a understandable way 	<ul style="list-style-type: none"> Partial answer Demonstrate a limited understanding of related concepts Handling questions in an acceptable way 	<ul style="list-style-type: none"> Incorrect answer Demonstrate poor understanding of related concepts Handling questions in an unacceptable way

COURSE CONTENT AND TENTATIVE TEACHING SCHEDULE

Week 1	Discussion of syllabus; Introduction, and basic and advanced functions of Excel
Week 2	Corporate finance – Financial statement basics, project cash flow analysis (goal search, sensitivity analysis, and scenario analysis), financial and operational leverage and uncertainty (data table)
Week 3	Stock pricing – stock and index returns, capital allocation and portfolio theory, CAPM and multi-factor models (regressions), portfolio diversification and efficient frontier using Excel, panel data
Week 4 & 5	Introduction to VBA
Week 6 & 7	Stock pricing – Simulating stock returns and prices using Excel and VBA; bootstrapping
Week 8 - 11	Option pricing using Excel and VBA – Basic option strategy and payoff structure

- Black-Scholes model
- Greeks parameters, option price changes with stock price/volatility/maturity
- Binomial option pricing
- Implied volatility

Week 12 Foreign exchange rates, unit root, autoregressive, and conditional heteroskedasticity
(optional) models

REQUIRED/RECOMMENDED READINGS & ONLINE MATERIALS (e.g. journals, textbooks, website addresses etc.)

Recommended readings:

1. Financial Analysis and Modeling: Using Excel and VBA, Chandan Sengupta, 2nd edition, published by John Wiley & Sons, Inc.
2. Excel Modeling, Craig W. Holden, 4th edition, published by Pearson, Inc.

MEANS/PROCESSES FOR STUDENT FEEDBACK ON COURSE

- conducting mid-term survey in additional to SETL around the end of the semester
- Online response via Moodle site
- Others: Course Evaluation at the end of the course (please specify)

COURSE POLICY (e.g. plagiarism, academic honesty, attendance, etc.)

Class Conduct

Students are required to attend all classes on time. If you miss a class, it is entirely your responsibility for what you have missed. In case you have to leave the class early, please inform the instructor beforehand and leave quietly.

No use of mobile phone or chatting is allowed when the class is in session. Remember to turn off or mute the phone before each session. The instructor has the discretion to give penalty in case of class misconduct.

Respect your instructors and your fellow students. Be considerate to others.

Late submission of assignments

Due dates and times for assignments are FINAL. Late submission of assignments will not be accepted.

Final exam

The instructor will proctor the final exam. Misbehavior such as attempting to cheat or peek or using cell phones will be penalized in grading upon the instructor's discretion. Confirmed cheating and peeking cases will be reported to the university. Using any kinds of communication devices or talking is strictly prohibited when exams are in session. Turn off or mute the phone before entering into exams. If a student's cell phone rings, the student may be subject to penalty based on the instructor's discretion.

Special Examinations

Please be reminded that student enquiries and applications for special examinations should be forwarded to the School Office to be handled in a formal and consistent manner. The School and the Chief Examiner may approach individual instructors for their recommendation if necessary. Controversial cases may need to be further discussed in the Internal Examiners' meeting and the Board of Examiners meeting.

In general, special examinations are not granted to students taking up summer internships. Teachers should advise their students to avoid starting their internships before the end of the examination period.

By default, special examinations would be approved:

- (1) if incoming/outgoing exchange students have time clash with the next academic semesters in their home/host universities;
- (2) due to compassionate reasons; and
- (3) on extraordinary medical situation.

Academic Dishonesty

The University Regulations on academic dishonesty will be strictly enforced! Please check the University Statement on plagiarism on the web: <http://www.hku.hk/plagiarism/>

Academic dishonesty is any act that misrepresents a person's own academic work or that compromises the academic work of another. It includes (but not limited to) cheating on assignments or examinations; plagiarizing, i.e., representing someone else's ideas as if they are one's own; sabotaging another's work.

If you are caught in an act of academic dishonesty or misconduct, you will receive an "F" grade for the subject. The relevant Board of Examiners may impose other penalty in relation to the seriousness of the offense.

ADDITIONAL COURSE INFORMATION (e.g. e-learning platforms & materials, penalty for late assignments, etc.)

1. Announcement, assignments, and lecture slides will be posted on the course MOODLE website. Hard copy of lecture notes will not be provided.
2. Assignments will be graded by teaching assistants.
3. Teaching assistants will offer weekly tutorials to review lecture materials and assignment solutions.