北京大学 汇丰商学院
Peking University HSBC Business School

FIN513
Financial Modeling
Module 1, 2017-2018

Course Information

Instructor: Fritz Koger
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Office Hour: Tuesdays 10:30-11:00, or by appointment.

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Classes:
Lectures: Tuesdays & Fridays 08:30 - 10:20 am.
Venue: PHBS Building, Room 403

1. Course Description

1.1 Context

Course overview:
This course is intended for the student who wishes to learn how to utilize financial theory in real world applications. The course is practical in nature. Upon completion of the course, the student will be fluent in both Excel as well as financial modeling. Such fluency will position him/her very well for essentially any financial job. The student will also have a nice tool kit of many real world financial models across a very broad range of topics. This combination of fluency of financial modeling and portfolio of models will prove invaluable during both interviews with potential employers as well as execution of finance-related employment tasks.

Prerequisites:

Asset Valuation Theory (AVT). Also, the course will be simpler if the student has previous exposure to Excel and to financial statement analysis. Nonetheless, the first lecture will be used to introduce the basics of Excel, including Excel's basic financial functions. Additionally, the professor will spend a few minutes at the beginning of many lectures reviewing the relevant financial concepts to be modeled that day. However, a student who has NOT completed AVT will not find these brief reviews sufficient. Thus, AVT is a definite pre-requisite.

1.2 Textbooks and Reading Materials

Textbook
Simon Benninga, "Financial Modeling", 4th Ed., 2014, Massachusetts Institute of Technology, ISBN-13: 860-1401358411; ISBN-10: 0262027283
Chandan Sengupta, "Financial Modeling Using Excel and VBA", 2nd Ed., 2010, Wiley Finance, ISBN-13: 78-0471267683; ISBN-10: 0471267686

Recommended Readings

Michael Rees, "Financial Modelling in Practice", 2008, Wiley Finance, ISBN: 978-0-470-99744-4.
Mary Jackson and Mike Staunton, "Advanced Modelling in Finance using Excel and VBA", 2001, Wiley Finance, ISBN-13: 978-0-471-49922-0.
John Charnes, "Financial Modeling with Crystal Ball and Excel", 2012, Wiley Finance, ISBN 978-1-118-17544-6.
Simon Benninga, "Principles of Finance with Excel", 2006, Oxford University Press, ISBN-13: 978-0-19-530150-2.
Isaac Gottlieb, "Next Generation Excel, Modeling in Excel for Analysts and MBAs", 2010, John Wiley and Sons, ISBN: 978-0-470-82473-3.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	
	2.2. Students will be able to apply leadership theories and related skills.	
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	
	3.2. Our students will practice ethics in the duration of the program.	
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	
	5.3. Our students will demonstrate competency in critical thinking.	

2.2 Course specific objectives

2.3 Assessment/Grading Details

Assessment task	Weighting
Professor's Subject Evaluation	10%
Average of student's Group Project Scores*	40%
Individual Final Exam Score	50%
Total	100%

***Group Peers' Subjective Evaluation:** Each student will self-select into groups of five or six students. (The professor will assign any student to a group who chooses not to self-select.) Evaluations from each student's group peers will be done during the final week of the module. NO HUMAN BEING OTHER THAN THE PROFESSOR WILL SEE ANY STUDENT'S EVALUATIONS; NOT EVEN THE TAs. These evaluations will factor into the "Average of student's Group Project Scores". So a student who receives his/her proportional weight from his peers' evaluations will have a factor of 100%. A student who receives more than (less than) his/her proportional weight will have a factor greater than (less than) 100%.

***FINAL EXAM*:** If the student has actively participated in all project work, if the student has attended all lectures, if the student has kept up with textbook lecture readings, and if the student has studied carefully the lecture notes provided by the professor, then the final exam will be straightforward. Otherwise, the student will struggle with it.

FINAL EXAM GUIDELINES: Please review carefully the guidelines. If the student is uncomfortable with these, then the student should not take this course. The professor will grade that which is saved onto his/her USB (thumb) drive. If the student cannot confidently work quickly and efficiently and save your work afterward, then he/she should NOT take the course. The student who chooses to take the final exam with inferior equipment does so at his own peril.

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics & Teaching Schedule

***Course Schedule*: M**inor modifications to this schedule are possible. **Chapters in Simon Benninga,**

Lecture	Dates	Primary Text Book Chapters (See next page for Ch. titles)	Projects
1	Tues., Sept. 5, 2017	Introduction to Excel; Part 5 (Ch. 29, excluding VBA)	
2	Fri., Sept. 8, 2017	Part 5 (Ch. 30, 31, 32, part of 33), Introduce ***Ch. 18***, and ***Ch. 1***	
3	Tues., Sept. 12, 2017	Part 5 (Continue Ch. 33)	
4	Fri., Sept. 15, 2017	Part 5 (Ch. 34, 35)	
5	Tues., Sept. 19, 2017	Part 1 (Ch. 1, 2)	
6	Fri., Sept. 22, 2017	Part 1 (Ch. 2 and Ch. 27)	
7	Tues., Sept. 26, 2017	Part 1 (Ch. 3, 4)	#1, Wednes., Sept. 27, 20:00
8	Fri., Sept. 29, 2017	Part 1 (Ch. 18, 15, begin Ch. 8)	
9	Tues., Oct. 10, 2017	Part 2 (Ch. 8, 9, 10, 12)	#2, Wednes., Oct. 11, 20:00
10	Fri., Oct. 13, 2017	Part 2 (Ch. 12,14)	
11	Tues., Oct. 17, 2017	Part 2 (finish Ch. 14), Review Ch. 16 on your own. Begin ***Part 3*** (begin Ch. 19): BS put; BS call; IV put; IV call; lower bound put; lower bound call;	#3, Wednes., Oct. 18, 20:00
12	Fri. Oct. 20, 2017	Part 3 (Ch. 19, 20); Greeks, payoff/profit of collar; Structured products; implied volatility; bang for buck; money back guarantee (implicit put); guaranteed minimum return;	
13	Tues., Oct 24, 2017	Part 3 (Ch. 20 and 21) Delta hedging: call and collar (minus S)	#4, Wednes., Oct. 25, 20:00
14	Fri. Oct 27, 2017	Part 3 (Ch. 21) portfolio insurance (protective put: delta hedge versus proportional weights); (Ch. 22) MC via pi; risk-averse retirement example;	
15	Tues., Oct 31, 2017	Part 3 (Ch. 17) Binomial model: Euro Put V. BS (benchmark) V. Amer Put.	#5, Wednes., Nov. 1, 20:00
16	Fri. Nov 3, 2017	Part 3 (Ch. 23, 24) Eight path dependent options (4 Asians, 4 Barriers) and real options (expansion call & abandonment put)	
17	Tues., Nov 7, 2017	Part 4 (Ch. 25, Start Ch. 26) Bond basics, sensitivities, price-yield curve: actual V. 1st order approximation V. 2nd order approximation.	#6, Wednes., Nov. 8, 20:00
18	Fri., Nov 10, 2017	Part 4 (Continue Ch. 26, Ch. 28) Immunization strategies	
Final EXAM	***Tues.,*** Nov 14, 2017	Per PHBS Schedule	Room 501?

"*Financial Modeling*", 3rd Ed., 2008, Massachusetts Institute of Technology, ISBN: 978-0-262-02628-4.

Part	Chapter	Title
Part 1		**CORPORATE FINANCE MODELS**
	1	Basic Financial Calculations
	2	Calculating the Cost of Capital
	3	Financial Statement Modeling
	4	Building a Financial Model: PPG Corporation
Part 2		**PORTFOLIO MODELS**
	8	Portfolio Models – Introduction
	9	Calculating Efficient Portfolios with No Short Sale Restrictions
	10	Calculating the Variance-Covariance Matrix
	12	Efficient Portfolios without Short Sales
	14	Event Studies
	15	Value at Risk
Part 3		**OPTION-PRICING MODELS**
	16	An Introduction to Options
	17	The Binomial Option-Pricing Model
	18	The Lognormal Distribution
	19	The Black-Scholes Model
	20	Option Greeks
	21	Portfolio Insurance
	22	An Introduction to Monte Carlo Methods
	23	Using Monte Carlo Methods for Option pricing
	24	Real Options
Part 4		**BONDS**
	25	Duration
	26	Immunization Strategies
	27	Modeling the Term Structure
	28	Calculating Default-Adjusted Expected Bond Returns
Part 5		**TECHNICAL CONSIDERATIONS**
	29	Generating Random Numbers
	30	Data Tables
	31	Matrices
	32	The Gauss-Seidel Method
	33	Excel Functions
	34	Using Array Functions and Formulas
	35	Some Excel Hints

4. Miscellaneous

Professor's Subjective Evaluation: This is based in part, on his/her punctuality, attendance, classroom behavior, attitude, preparedness, etc… Per PHBS policy, if he/she is absent 6 (or more) lectures, then he/she ***automatically fails*** the course. The professor appreciates the student letting him know *in advance* if he/she will be tardy or absent. However, this does not excuse an absence. Please note that the number of absences is independent of whether or not they are approved by the University or HSBC Business School. (The professor does ***not*** distinguish between approved or unapproved absences.) Also, the professor does ***not*** sign PHBS forms related to the student's planned absence(s).

To minimize classroom disruptions, the professor strongly urges the student to be punctual. All announcements are made at the beginning of class, making punctuality all the more important.

If you miss a lecture, you are responsible for material covered. ***Secure information missed from a fellow student***, not from the professor.

Disturbing class lectures will negatively impact the student's subjective evaluation. Talking during class, having a cell phone ring, etc… are disturbances that are unacceptable. These rules are designed to optimize the learning environment for all students.

Educational Norms and Expectations: The student is responsible for material covered in any class. If a student misses a class, he/she should retrieve lecture notes from a classmate.
It is in the student's best interest to ***read the relevant chapters in the book BEFORE the lecture***. That way, the student will find the lecture period to be much more productive.

Suggestions for improving the course: The professor is committed to making this course as good as possible. If the student has suggestions to improve the course, he/she should inform the professor, ***IN PRIVATE***. (During a lecture is ***not*** the appropriate time for such feedback, as there is no time during the lecture for such discussions.) The course is obviously for the student's benefit, not the professor's. So any feedback is greatly appreciated and is seriously considered.

Add/Drop the Course: Per PHBS policy, the student is not allowed to add or drop this course after the first week.

Miscellaneous: Any issue not specifically addressed here will be handled at the discretion of the professor.