# FIN513
# Financial Modeling
# Module 2, 2018-2019

## Course Information

**Koger's Financial Modeling won the Excellence Course Award of Peking University in 2017, the only one from PHBS!**

***Instructor: Fritz Koger, CFA, PhD***
Office: PHBS Building, Room 752

Phone: It is best to contact me via email.
Email: fritzkoger@phbs.pku.edu.cn

Email is the best way to contact me for questions regarding course content.

I request that you send me NO emails regarding your absence.

Any email regarding the content of the course, i.e., the topics, will be warmly addressed in a timely manner! ☺

Office Hour: Mondays 10:30-11:00, or by appointment.

***Teaching Assistant***: ~~Susan (SuSu) 132 8108 1109~~
~~**WeChat** sxspecial2012 (2016 Finance 3) **苏欣** 2016 F3~~
~~1601213601@sz.pku.edu.cn~~

***Classes:***
Lectures: Mondays & Thursdays 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) is highly recommended**.** Also, the course will be simpler if the student has previous exposure to Excel and to financial statement analysis. Nonetheless, the first few lectures 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 may not find these brief reviews sufficient. The professor will determine if a student who has not yet completed AVT will be allowed to participate in Financial Modeling.

### *1.2 Textbooks and Reading Materials*

Textbook
"*Financial Modeling in Excel*", Koger, F, will be provided by the professor for 50 RMB.

Recommended Readings
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
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 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 TEACHING ASSISTANT. 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.

***FINAL EXAM GUIDELINES***: The professor will grade that which is saved onto his/her USB (thumb) drive. The student be able to confidently work quickly and efficiently and save his/her work afterward.

## *2.3 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

| Lecture | Dates | Primary Text Book Chapters (See next page for Ch. titles) | Projects |
|---|---|---|---|
| | | | |
| **1** | Thurs., Nov. 15, 2018 | Introduction to Excel; | |
| **2** | Mon., Nov. 19, 2018 | Continue Introduction to Excel; | |
| **3** | Thurs., Nov. 22, 2018 | Continue Introduction to Excel; | |
| **4** | Mon., Nov. 26, 2018 | Continue Introduction to Excel; | |
| | | | |
| **5** | Thurs., Nov. 29, 2018 | Growth rates; effective annual rates; regression analysis: ytm(T); | |
| **6** | Mon., Dec. 03, 2018 | Solver (NPV); identity matrix; other | |
| **7** | Thurs., Dec. 06, 2018 | Firm and equity valuation; | #1, Fri., Dec. 07, 20:00 |
| **8** | Mon., Dec. 10, 2018 | Dividend impact upon return; variance-covariance; diversification benefits to combining assets; value at risk (VaR); | |
| | | | |
| **9** | Thurs., Dec. 13, 2018 | Portfolio management; estimating variance-covariance matrix; 2-asset portfolio risk-reward; VaR in a portfolio context; | #2, Fri., Dec. 14, 20:00 |
| **10** | Mon., Dec. 17, 2018 | Event studies;<br>Black-Scholes model;<br>BS put; BS call; IV put;<br>IV call; LB put; LB call; | |
| **11** | Thurs., Dec. 20, 2018 | Applications of BS model: plotting payoffs/profits of a portfolio, e.g.: collar; structured products; implied volatility; bang for buck;<br>money back guarantee (implicit put);<br>guaranteed minimum return; | #3, Fri., Dec. 21, 20:00 |
| | | | |
| **12** | Mon., Dec. 24, 2018 | Portfolio replications if options on the desired underlying asset do not exist; | |
| **13** | Thurs., Dec. 27, 2018 | Portfolio replications: a second method if the replication is long both stock and bond. | #4, Fri., Dec. 28, 20:00 |
| **14** | Mon., Dec. 31, 2018 | Binomial model: European put;<br>American put: (a) value; (b) nodes in which early exercise is optimal; (c) Prob. of early exercise each period; | |
| **15** | Thurs., Jan. 03, 2018 | Real options (expansion call & abandonment put);<br>Path-dependent options (4 Asians, 4 Barriers) | #5, Fri., Jan. 04, 20:00 |
| **16** | Mon., Jan. 7, 2018 | Bond pricing and sensitivities; | |
| | | | |
| **17** | Thurs., Jan. 10, 2018 | Bond immunization; | #6, Fri., Jan. 11, 20:00 |
| **18** | Mon., Jan. 14, 2018 | REVIEW | |
| | | | |
| **Final EXAM** | ***To Be Determined*** | Per PHBS Schedule | Room 501? |
| | | | |

## 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 requests that the student send no emails regarding his/her attendance or absence to a lecture, either before the lecture or after. The reason is that this doesn't change my policy. Again, please do not send an email to the professor regarding attendance/absence. If the student does so, the professor will simply ignore it and delete it. The student should refrain from such emails. 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.

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.