Investment Analysis with Excel and VBA
FIN 206f

Spring 2012
M/W 10.30am–12:00 pm
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Course description

This course connects textbook finance with real-world business by providing a nuts-and-bolts guide to solving common models with spreadsheets and Visual Basic for Excel. It will cover three topics: modeling the term structure of interest rates and pricing models for risky debt, advanced computational techniques for options (including Monte Carlo methods) and the pricing structure products.

Learning goals

1. Understand and implement basic and advanced models for pricing bonds and derivatives by using Excel and VBA.
2. Gain a quantitative understanding of advanced models for options and bond pricing and their implementation
3. The knowledge of finding the fair price of a structured product or complex bond security by using Excel and VBA.
4. The ability to implement a risk management model for structured product or complex bond security by using Excel and VBA.

Textbook:

Financial Modeling, 3rd edition by Simon Benninga (MIT Press, 2008).

- You may purchase this book at Amazon or at the local bookstore.

Additional references may be prescribed for individual topics as appropriate.

Prerequisite:

FIN 201a or FIN 205a. The course may not be taken for credit by students who have taken FIN 262a in previous years.

Course Materials Online

This course will rely heavily on the LATTE/Moodle platform – the web site will include downloadable files with the class handouts, copies of problem sets and suggested answers. You will need your UNet username and password to log on to the system at http://latte.brandeis.edu. You should check this site, and your e-mail regularly for the course announcements.

Learning and teaching strategy

Lectures will explain and illustrate major ideas, and disseminate information about the operation and administration of the unit. Tutorials will reinforce the ideas introduced in the lectures, primarily through discussion and numerical exercises. To help achieve the learning outcomes of the unit, you should:

1. Read the assigned references for the current week's lecture
2. Attend the weekly lecture and review the lecture notes
3. Prepare answers to the weekly assignment questions and problems in advance of the tutorial
4. Identify any problems in relation to the lectures or tutorial problems and discuss these issues during the tutorial
5. Develop reasoning skills and not only rely on the reproduction of textbook or other source material.

Calculator

You can use any calculator you would like when solving problems on the problem sets, including scientific, programmable, graphing, financial, or software (such as Excel). However, on the exams (i.e. quiz, midterm, and final) you will be allowed to *only* use scientific calculators. You will *not* be allowed to use programmable or financial calculators, or any other calculators capable of directly calculating bond price, annuity value, yield to maturity, or duration. In order

to prepare for this, I would strongly advise everyone to purchase a scientific calculator in the near future and make sure you are able to solve problems using it.

Course Requirements and Evaluation

Grading Points:

Class participation and individual assignments: 10%
Final exam: 30%
Take home exam: 20%
Group Assignments 40%

Final Exam (30%)
The final exam will be based on the material and the examples covered in class, home reading and general knowledge of financial markets. The final exam will be comprehensive; you will be responsible for the material covered during the entire course. All exams are closed book and closed notes. You are not allowed to use any notes. I will allow the use of non-programmable calculators during the exams.

Take Home exam/project (20%)
While the final exam will be focused in writing a pseudo code for several question, the Take Home exam/project will give the students a full week to implement these questions by creating financial calculators in Excel and VBA that will try to target the same questions.
Group Assignment (40%)
There will be 3 group assignments (up to 4 students in each group). Although similar in nature, the group assignments are more complicated and demanding than the independent problem sets. The assignments demand the usage of ***Excel*** and ***Bloomberg*** as well.

Class Participation (10%)
Class time is a more enjoyable and productive learning experience when students come prepared to discuss the assigned readings. Students will be evaluated on the quality of class participation throughout the course. I reserve the right to call on students in class. We will often start class with a short discussion of recent events. Please make sure you closely follow all major financial developments.

Disabilities

If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this class, please see me immediately.

Academic Integrity

You are expected to be familiar with and to follow the University's policies on academic integrity (see http://www.brandeis.edu/global/current_academic_integrity.php). Instances of alleged dishonesty will be forwarded to the Office of Campus Life for possible referral to the Student Judicial System. Potential sanctions include failure in the course and suspension from the University.

Class schedule and Reading

Detailed plan of the course (changes are possible)		
Session 1	Review of Excel background • Data tables • Matrices • Array functions • VBA for beginners (especially **GetFormula**)	FM3: Chapters 8, 30, 34, 36
Session 2	Review of options, basic arbitrage propositions, binomial model, Black-Scholes	FM3: Chapters 16, 17, 19
Session 3	Review of options, basic arbitrage propositions, binomial model, Black-Scholes	FM3: Chapters 16, 17, 19
Session 4	Introduction to Monte Carlo methods	FM3: Chapter 22
Session 5	Monte Carlo applied to exotic options	FM3: Chapter 23
Session 6	Modeling interest rates term structure	FM3: Chapter 27
Session 8	Projects and final exam	