

Syllabus Foundations of Finance

Spring 2013

COR1-GB.2311.30

1 Instructor

Professor Xavier Gabaix

Email: xgabaix@stern.nyu.edu

Office: KMEC 9-77

Phone: (212) 998-0257

Web page: <http://www.stern.nyu.edu/~xgabaix>

Office Hours: Monday 5-5.55pm and 9-10pm, or by appointment.

Administrative assistant: Tanesha Thomas tthomas@stern.nyu.edu, KMEC 9-194B

2 Teaching Assistant

Our TA is Mark Gill.

Email: mpg312@stern.nyu.edu

Office: 7th floor teaching assistance center (KMEC 7-100)

Office hours: Monday 4.30pm-5:55pm and Wednesday 5-6pm.

3 Class Time

The class meets once per week. Each class time is divided into two sessions.

Session 1: 6:00-7:25 pm

Session 2: 7:40-9:00 pm.

The first class is on Monday 2/11.

The last class (final exam) is on Monday 5/13.

There is no class on 2/18 (President's Day) or 3/18 (Spring break).

The venue is KMEC 5-90.

Classroom Civility Your behavior should respect your classmates’ desire to learn. Each lecture begins exactly at 6:00 p.m. and ends exactly at 9:00 pm. I understand your busy work schedules, but try not to come late. Because of the classroom layout, it is disruptive no matter how quiet you are. If you carry a cell phone or any other type of ‘audible alert device’, turn it off before entering class. Do not engage in side conversations during the lecture. Repeated occurrence of such disruptions will be reflected in the final grade.

If you must miss a class or must come late, please let me know by email beforehand. For the midterm and final, we’ll abide by the strict Stern policy: “Faculty will excuse absences only in the case of documented serious illness, family emergency, religious observance, or civic obligation. If you will miss class for religious observance or civic obligation, you must inform your instructor no later than the first week of class. Recruiting activities and business trips are not acceptable reasons for absence from class.”

4 Readings

The textbooks for this class are:

- 1 “Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, 9th edition (or an earlier edition – see below).
- 2 “Student Solutions Manual for Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, Alan Marcus, 9th edition
- 3 Selected Materials from “Essentials of Corporate Finance” by Stephen A. Ross, Randolph W. Westerfield, Bradford D. Jordan, 6th edition

We will mainly use [1], abbreviated BKM below. If you have an *earlier edition* of BKM (which is cheaper), you are fine. There are only minor changes between editions. Page and chapter numbers may vary slightly, but this is hardly a reason to buy a new copy.¹ The main role of the textbooks is to serve as a source where you can review the material. BKM is at times very good and tightly linked to the material I cover, but the link to the material I cover in class is a bit weaker on some other topics. That being said, it is currently the best book on the market for our purposes, and you will need it to prepare before class and go over the material after class.

Book [2] will come in handy to solve practice questions. We will only use chapters 4 and 5 from book [3], abbreviated RWJ. These two chapters come as a *supplement* in the class material packet if you purchased your class material through the bookstore. The supplement [3] will only be used in classes 3 and 4. If you did not buy [1] through the bookstore, you can purchase [2] and [3] separately on the publisher’s web site.²

¹If you already own the “Essentials of Investment” textbook by the same authors instead, you will have more difficulty finding the corresponding chapters, sections, and exercise numbers because they are all different. You may want to upgrade to the “Investments” book. The same is true for the international version of the Investments book.

²Go to <https://create.mcgraw-hill.com/shop/>. Search for “Prof. van Nieuwerburgh.”

The main class material is the course pack, which will be distributed in class. It contains all powerpoint slides that I use in class, handouts with important material covered in class, problem sets, and practice exams. You will want to take notes during class; space is available next to the slides and on the left page. The handouts at the end of the course pack are there to alleviate the amount of writing you need to do.

Staying Up-to-Date The class web site on Blackboard contains links to recent articles in the financial press that complement the lectures. You are encouraged to follow financial and macroeconomic news in the Financial Times, Wall Street Journal, or The Economist. If you encounter an interesting article that you would like to share with the class, send me an email and I will post it on the class web site. This section of the Blackboard site is regularly update during the semester.

5 Calculator

You need a calculator for this class. It is a distinct advantage to have a financial calculator, but not an absolute requirement. If you plan to take other finance classes, you will get good use out of a financial calculator anyways. Standard financial calculators include the HP 12C (costs about \$70), the HP 10B-II (costs about \$30) and the TI BA-II Plus (costs about \$30). You are expected to learn how to operate the calculator on your own. However, you can get help by attending the teaching assistant's review sections (after class 2) or his office hours. Finally, I have included some useful slides in the course pack on how to work with the calculator.

6 Communication

The class web site is on Blackboard at <http://sternclasses.nyu.edu/>. This is the central location where all teaching materials are posted. TA office hours and class announcements will be posted here. Problem sets are posted there as well. Solutions to the problem set will be posted no later than one week after the due date; they will not be distributed in paper form in class.

The class web site also contains the concept questions (see below), suggested problems, and some finance links and articles. Finally, there is a discussion board where the TAs and myself will participate on a regular basis to answer your questions. You are encouraged to answer each others' questions. If you have a question, first turn to the discussion board; chances are the question has been asked and answered there already.

7 Exams and Assignments

Grades will be based on the final exam (40 percent), the midterm exam (30 percent), problem sets (20 percent), and participation (10 percent). The participation grade consists of class

participation (2/3) and participation in the concept questions on Blackboard (1/3).

The Stern finance department follows a strict grading curve for graduate core courses (see finance department web site). I am required to strictly adhere to this curve. The finance curve for core courses is: A (10%), A- (15%), B+ (15%), B (40%), B- (15%), C (5%).

Honor Code You are responsible for maintaining Stern's Honor Code which mandates zero tolerance for cheating and plagiarism. Violations of the honor code will be prosecuted with a minimum penalty of failure for the course, as required by code of conduct rules. If you become aware of any violations of the honor code you must take whatever steps are necessary to stop the violators. Per request of the dean, you must include a signed statement at the top of each problem set and exam, indicating that you adhere to the honor code. The statement is: *'I pledge my honor that I have not violated the Stern Honor Code in the completion of this exam/problem set.'* It is in your best interest that the market place knows that Stern takes honesty seriously; it adds to the value of your degree.

Exams The midterm and final exams test your understanding of the key concepts in the class. They do not test your ability to memorize or to use your calculator. Rather they probe your deeper understanding of the material. As a result, they may be more challenging than the exams you are used to. To prepare for these exams, you should review the slides together with your own class notes, the handouts (at the end of the course pack), the concept questions, the required readings, the problem sets, the sample exams (located in your course pack behind the homework), and preferably the suggested problem sets and suggested readings. The final exam is *cumulative*.

You will be allowed one double-sided page of notes at the midterm exam and two double-sided pages of notes at the final exam. The sheets must be no larger than 8.5 inch by 11 inch. There are no restrictions on the content of the formula sheets, except that you are not allowed to reprint my Powerpoint slides verbatim. You will be asked to turn in these formula sheets after the midterm and exam, but you will be able to recover the midterm sheet in the week after the midterm.

You are not allowed to take the exam questions home, and no written answers will be provided. There will be a post-midterm discussion in class 7. Once graded, you are allowed to come visit your midterm in my office, during office hours or by appointment. The same rules apply to the final. If you must miss an exam, you will be required to make it up after the semester is over. No laptops nor palm pilots are allowed on the exam.

Concept Questions After every other class, concept questions are posted on Blackboard under *Course Documents*. The concept questions test your understanding of the main concepts taught in the class of that day and the previous class. Usually, there are between 5 and 10 multiple choice questions per test. After you have reviewed the material from class, it should take you no more than 10 minutes to complete these concept questions. Every concept test is available for *10 days*, starting from the time the class ends. If you like to keep the concept questions for your records, you must print them out while the test is online. I do

not distribute these questions by email and do not make the link available after the initial ten day period.

Participation in the concept questions counts towards your participation grade (it is one-third of your participation grade). However, I will not keep track of whether you answered the questions correctly or not. Basically, the concept questions are good preparation for the exam and a device that gives you an incentive not to fall behind.

Problem Sets There will be 4 problem sets over the course of the semester. Each problem set contains 1 excel question, emphasizing a practical implementation of a concept. The problem sets are graded on a 5 point scale. Late problem sets will *not be accepted*. You are encouraged to work in groups on the problems, but you must hand in your own copy and you are asked to acknowledge any help you received on the front page of your copy. The homework questions will be in the same spirit of the exam questions, but slightly easier. After all, they are your first encounter with the implementation of the material.

Suggested Problems Suggested problems are posted on Blackboard under *Assignments*. These questions are intended you give you extra practice over and above the homework. You do not have to turn them in, and there is no credit for them. You can look up solutions in your solution manual [2]. The solutions to the questions in the RWJ booklet (class 2) are included in your course pack. Practice makes perfect: You are strongly encouraged to take the suggested problems seriously.

Study Groups It is highly recommended that you regularly review the class material in your study group. Don't wait until exam time to meet with your group. By then it's too late. You are encouraged to work on the problem sets with your study group, but you must hand in your own answers.

8 Course Content and Class Schedule

Content The course is a rigorous, quantitative introduction to financial market structure and financial asset valuation. The main topics of the course are arbitrage, portfolio selection, equilibrium asset pricing (CAPM), fixed income securities and derivative pricing. There is a small section on project valuation.

You are expected to understand valuation formulas and be able to apply them to new problems. The appropriate tools necessary for solving these problems will be developed at each stage and practiced in the homework assignments. The models we will cover have immediate applications and implications for real-world financial decisions. Every effort will be made to relate the course material to current financial news.

Prerequisites Students must be comfortable with statistics, linear algebra, calculus, and microeconomics. Students are strongly encouraged to study the review handout on statistics

at the beginning of the semester (Handout H0 located at the end of your course pack). Alternatively or additionally, the Quantitative Review in appendix A of BKM will help you through refresh the statistics material.

Detailed Outline Below is a detailed schedule of the date and topic of each class. Required readings are indicated as RR, suggested readings as SR. The readings starting with 'H' are handouts, situated at the end of your course packet. Homework due dates are also mentioned.

Topic 1: Financial Instruments and Markets (2/11)

Overview of class	RR: Syllabus	
Financial Instruments	RR: BKM 1.1-4,	SR: BKM 1.5-7, 2
Financial Markets	RR: BKM 3.1-3, 3.5, 3.7	SR: BKM 3.4, 3.6, 3.8

Topic 2: Performance of Securities (2/25)

PV, FV, annuities, perpetuities	RR: RWJ 4, 5.1-2, H1-2	
Compounding and Return measures	RR: RWJ 5.3-4	SR: BKM 5.1, 5.3
	RR: BKM 5.2, 5.4-6, H3-5	

Topic 3: Portfolio Theory (3/4)

Positions and Portfolio Returns	RR: H6-8, BKM 6.2	SR: BKM 5.7-9
Efficient Portfolios with Two Risky Assets	RR: BKM 7.1-2, H9	
Optimal Portfolios and Investor Preferences	RR: BKM 6.1	

Homework 1 is due in class.

Topic 4: Portfolio Theory (3/11)

Efficient and Optimal Portfolios with Riskless Asset	RR: BKM 6.2-6, 7.3	
and with Multiple Risky Assets	RR: BKM 7.3-4, 8.1-4, H10-11	SR: BKM 7.5
Introduction to Capital Asset pricing Model	RR: BKM 9.1	

Topic 5: Capital Asset Pricing Model (3/25)

The Capital Asset Pricing Model	RR: BKM 6.6, 8.5, 9.1-2, H12	SR: BKM 9.3
Applications of the CAPM	RR: BKM: 10.1-2, H13-14	SR: BKM 9.3-6, RWJ 8.1, 8.4

Homework 2 is due in class.

Topic 6: Arbitrage and Midterm (4/1)

Midterm exam in class (90 mins).		
Arbitrage and the Law of One Price (70 mins)		RR: H15

Topic 7: Equity Valuation and Arbitrage (4/8)

Dividend Discount Models and Valuation Ratios RR: BKM 18.1 – 4, H16-17 SR: BKM 18.5-6
Midterm evaluation (20 mins)

Topic 8: Fixed Income Securities (4/15)

Bond Prices and Yields RR: BKM 14.1 – 4, H18-19, SR: BKM 14.5
Yield Curve and Forward Rates RR: BKM 15.1-6, H20-22

Topics 8 and 9: Fixed Income Securities and Options (4/22)

Duration and Immunization RR: BKM 16.1-3, H23-24 SR: BKM 16.4
Options Basics and Strategies RR: BKM 20.1-3, H25 SR: BKM 20.5 – 7
Homework 3 is due in class.

Topic 9: Options (4/29)

Options Strategies and Minimum Value RR: BKM 20.3-4, 21.1-2, H26-27 SR 20.4-7
Black-Scholes Option Pricing Formula RR: BKM 21.3-5 SR: BKM 21.6

Topic 10 and 11: Futures and Market Efficiency (5/6)

Futures and Swaps RR: BKM 22.1, 22.3-5, 23.2, 23.5, H28 SR: BKM 22.2
Market Efficiency RR: BKM 11 SR BKM 12
Homework 4 is due in class.

Class 12: Final (5/13)

Final exam in class (180 minutes).