

Syllabus Foundations of Finance

Fall Semester 2016

COR1-GB.2311 – Sections 10 & 11

1 Instructor

Professor Johannes Stroebel

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Office Hours: I will hold office hours Mondays 4.55pm to 5.55pm. I will also try to be early for class to give you an opportunity to ask questions then.

2 Teaching Fellows

This class has two teaching fellows, both of whom took the class last year:

- Paul Boulat – pcb243@stern.nyu.edu (OH: Thursday, 5.00pm-6.00pm, KMC M2-80)
- Michael Holden – mah851@stern.nyu.edu (OH: Tuesday, 5.00pm-6.00pm, KMC M2-80)

Each TF will offer one office hour per week (see parentheses). You can go to any of the two TFs if you have questions. Combined with my own office hours, this means you will have an opportunity to attend office hours and ask questions on Mondays, Tuesdays and Thursdays.

3 Class Time

- The class meets once per week, during 12 weeks. The class meets between 6pm and 9pm. There will be a 15-20 minute break at about 7.25pm.
- The first class is on Monday 9/19 or Tuesday 9/20.
- The last class (final exam) is on Monday 12/12 or Tuesday 12/13 (Deviation from calendar!).
- The venues are Monday in KMC 3-90, and Tuesday in T-201

Important: In previous years the academic calendar allowed me to teach all sections in sync, with obvious benefits for the students, who could attend any one of the classes. This year this is unfortunately no longer quite possible. However, to minimize disruptions caused by the suboptimal academic calendar, our teaching schedule will deviate slightly from the published calendar, in particular for the Tuesday section. **Specifically, the final exam will be on December 13, 2016.** I hope that this will help those of you who are traveling already on December 20 to attend the final. It also means students from the Tuesday section can take full advantage of all the final exam preparation help that we are providing..

Classroom Civility Your behavior should respect your classmates desire to learn. Each lecture begins exactly at 6pm and ends by 9pm. 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.

Class Recording Given our complicated class schedule, I will try to make sure that every week’s class is recorded at least once (i.e., for one of the sections). This is NOT a replacement for attending class on a regular basis, but should allow you to review key materials, and to keep up with the class in case you at traveling during a particular week and cannot attend an alternative section due to our scheduling.

Students with Disabilities If you have a qualified disability and will require academic accommodation during this course, please contact the Moses Center for Students with Disabilities (CSD, 998-4980) <http://www.nyu.edu/csd/> and provide me with a letter from them verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation.

4 Readings

The main class material is the course pack which I will hand out in the first class. All of this material will also be available on NYU Classes. The course pack contains all powerpoint slides that I use in class, handouts with important material covered in class, problem sets, and practice exams. Since I will try to keep the class relevant to developments in the financial sector, the final set of slides might differ from the ones provided in the course pack. 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.

The textbooks corresponding to the suggested readings are given below. These textbooks are also the source for the suggested practice exercises. *NOTE: the textbook is not required. Having said this, last year many people found the textbook very helpful. Read the description below before you decide on whether you feel it would be worth it for you to buy the textbook.*

- 1 “Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, 10th edition
- 2 “Solutions Manual to accompany Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, Alan Marcus, 10th 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, 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. If you use an older edition it is your responsibility to find out the differences with the latest edition.¹ The main role of the textbooks is to serve as a source where you can review the material. Practice questions also usually come from BKM. At times BKM is very good and tightly linked to the material I cover. However, for other topics the link to the material I cover in class is a bit weaker. That being said, it is currently the best book on the market for our purposes, and some students find it very useful for preparing before class and reviewing 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]. These two chapters are included with the course material available from the NYU bookstore.

Staying Up-to-Date The class web site on NYU Classes 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.

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 assistants’ calculator review sections (**Friday, September**

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.

23, 6pm - 8pm, KMC M2-60 – this class will be recorded) or the TFs' office hours. I also have included some useful slides in the course pack on how to work with the calculator.

6 Communication

NYU Classes will be the central location where all teaching materials are posted, including solutions to the problem sets. The class web site also contains suggested problems, and some finance links and articles.

7 Exams and Assignments

Grades will be based on the final exam (45 percent), the midterm exam (30 percent), problem sets (20 percent), and participation (5 percent). The participation grade consists of class participation. I am required to follow the Stern finance department's grading guidelines for graduate core courses (see finance department web site).

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 readings, the problem sets, the sample exams (located in your course pack behind the homework), and preferably also the suggested problems. **The final exam is cumulative - it will put roughly equal weight on material from all parts of the course, including material already tested in the midterm exam.**

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 are not allowed to take the exam questions home, and no written answers will be provided. There will be a brief post-midterm discussion in class 7. Once graded, you are

allowed to review your midterm in my office, during office hours. The same rules apply to the final.

If you cannot make the exam in your assigned section, you can email me and (space constraints permitting) sit the exam with the other section. If you cannot make either section, for the midterm, you can choose to have the final exam count 75%.

Review Classes The TFs and I will offer review classes ahead of both the midterm and the final exam. We will try to record each of these off-schedule classes and put them on NYU Classes:

- Mid-term review class (Stroebe): October 29, 10am - 12am, KMC M2-60
- Mid-term - extra OH (Michael Holden): October 29, 1pm - 3pm, KMC M2-60
- Final review class (Stroebe): December 10, 10am - 12am, KMC M2-60
- Final - extra OH (Paul Boulat): December 10, 1pm - 3pm, KMC M2-60

Concept Questions In the course pack you will find a set of concept questions for every week. The concept questions test your understanding of the main concepts taught in the class of that week. Usually, there are between 3 and 10 multiple choice questions per test. After you have reviewed the material from class, it should not take you long (no more than 15 minutes) to complete these concept questions. The concept questions are a good warm-up for starting to practice solving problems on the material. They help to reinforce the material and make sure you do not fall behind. Solutions to the concept questions appear below the questions. There will be questions on both the mid-term and the final exam that are similar in style to these concept questions.

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 assignments will either not be accepted or will incur a grade penalty unless due to documented serious illness or family emergency. Exceptions to this policy for reasons of religious observance or civic obligation will only be made available when the assignment cannot reasonably be completed prior to the due date and you make arrangements for late submission in advance. *You are allowed to work in groups on the problems, but you must writeup and hand in your own copy and you are asked to acknowledge any help you received on the front page of your copy. Do not just print two copies of the same writeup.* This is for your benefit, since being forced to write up the problems will give you added familiarity and comfort with the material. 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 from BKM are also posted on NYU Classes. These questions are intended to 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]. Practice makes perfect: You are strongly encouraged to take the suggested problems seriously.

Study Groups It is highly recommended that you regularly review the readings and class notes in a study group. Don't wait until exam time to set up such a study 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, equities, 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 (Handouts H9 and H10; the handouts are located at the end of your course pack).

Detailed Outline Below is a detailed schedule of the date and topic of each class. The main readings that go with the class are indicated by MR; the chapters in BKM will cover roughly the same material as in the classes. As always, you need to know and understand only the material covered in the classes and lectures; use the readings below to help you achieve that goal. The readings starting with 'H' are handouts, situated at the end of your course packet. Homework due dates are also mentioned.

Class 1: Financial Instruments and Markets (Mo 9/19, Tu 9/20)

Overview of class	MR: Syllabus
Financial Instruments	MR: BKM Chapters 1 and 2
Financial Markets	MR: BKM Chapter 3, H1

Class 2: Performance of Securities (Mo 9/26, Tu 9/27)

PV, FV, annuities, perpetuities MR: **RWJ** 4, 5.1-2, H2-3
Compounding and Return measures MR: **RWJ** 5.3-4
MR: BKM 5.2, 5.4-6, H4-8

Class 3: Portfolio Theory (Mo 10/10, Tu 10/4)

Positions and Portfolio Returns MR: H9-12, BKM 6.2
Efficient Portfolios with Two Risky Assets MR: BKM 7.1-2, H13-14
Optimal Portfolios and Investor Preferences MR: BKM 6.1

Homework 1 is due in class.

Class 4: Portfolio Theory (Mo 10/17, Tu 10/18)

Efficient and Optimal Portfolios with Riskless Asset MR: BKM 6.2-6, 7.3
and with Multiple Risky Assets MR: BKM 7.3-5, 8.1-4
Introduction to Capital Asset Pricing Model MR: BKM 9.1-2, H15-16

Class 5: Capital Asset Pricing Model (Mo 10/24, Tu 10/25)

The Capital Asset Pricing Model MR: BKM 6.6, 8.3-5, 9.1-3
Applications of the CAPM MR: BKM: 10.1-2, RWJ 8.1, 8.4, H17

Homework 2 is due in class.

Class 6: Arbitrage and Midterm (Mo 10/31, Tu 11/1)

Midterm exam in class (90 mins).

Arbitrage and the Law of One Price (70 mins) MR: H18; Skim BKM 10-11

Class 7: Equity Valuation (Mo 11/7, Tu 11/8)

Dividend Discount Models and Valuation Ratios MR: BKM 18, H19-20
Midterm evaluation (20 mins)

Class 8: Fixed Income Securities (Mo 11/14, Tu 11/15)

Bond Prices and Yields MR: BKM 14.1 – 4, H21-22,
Yield Curve and Forward Rates MR: BKM 15.1-6, H23-25

Class 9: Fixed Income Securities and Options (Mo 11/21, Tu 11/22)

Duration and Immunization MR: BKM 16.1-4, H26-27
Options Basics and Strategies MR: BKM 20.1-3, H28

Homework 3 is due in class.

Class 10: Options (Mo 11/28, Tu 11/29)

Options Strategies and Minimum Value

Black-Scholes Option Pricing Formula

MR: BKM 20.3-4, 21.1-2, H29-30

MR: BKM 21.3-5

Class 11: Futures (Mo 12/5, Tu 12/6)

Futures MR: BKM 22, 23.2, 23.5, H31

Homework 4 is due in class.

Class 12: Final (Mo 12/12, Tu 12/13)

Final exam in class (180 minutes).