Foundations of Finance

Spring 2011-12
FINC-UB.0002.03-04

1. Instructor

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Office hours T 11:00am-12:00pm, R 1:00pm-2:00pm, or by appointment

Teaching Assistants: The TAs are Ilya Usorov (iu227@nyu.edu) and Vikram Surana (vs967@stern.nyu.edu). Their office hours will be posted on Blackboard and announced in class. They will each teach a review session on how to use a financial calculator after the second class (place and time will be posted on Blackboard and announced during the first class).

2. Class Time

The class meets twice a week on Tuesday (T) and Thursday (R), 8:00am–9:15am (section 03) and 9:30am–10:45am (section 04). The class location is Tisch-200 (both sections). The first class is on T 1/24 and the last class is on R 5/3. There is no class on T 3/13 and R 3/15 during Spring Break. The final exam is on R 5/10, 8:00am–9:50am (section 03) and on T 5/15, 8:00am–9:50am (section 04). Exams are held in the usual classroom.
**Classroom civility:** Your behavior should respect your classmates’ desire to learn. Each lecture starts and ends exactly at the listed time. I understand your busy schedules, but try not to arrive late. Because of the classroom layout, arriving late is disruptive no matter how quiet you are. Turn off cellphones and other audible devices before entering class. Do not engage in side conversations during class. Repeated occurrence of class disruptions will be reflected in your final grade. If you have to miss a class or arrive late, please let me know by email ahead of time.

### 3. Reading materials

The textbooks for this class are

1. “Essentials of Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, 8th edition;
2. “Student Solutions Manual to accompany Essentials of Investments” by Zvi Bodie, Alex Kane, Alan J. Marcus, Alan Marcus, 8th edition;

We will mainly use [1], abbreviated BKM below. If you have an earlier edition of BKM (7th or 6th), you are fine. There are only minor changes between recent editions. However, page and chapter numbers may vary. If you use an older edition, it is your responsibility to find out the differences with the latest edition. The solution manual [2] will come in handy when doing practice problems. We will use book [3], abbreviated RWJ, only in classes 3 and 4, and we will only use chapters 5 and 6. These two chapters are included with the course materials available from the NYU bookstore. If you did not buy your course materials through the bookstore, you can purchase [3] separately on the publisher’s web site (Go to https://create.mcgraw-hill.com/shop/#/catalog/details/?isbn=9780390169501. The booklet can be found under Prof. Stijn van Nieuwerburgh’s name. Item [3], ISBN: 9780390169501, price: $14.63.)

The textbooks are your source to review the material. BKM is often very good and tightly linked to the material we will cover, but at other times that link is weaker. That said, it is currently the best book on the market for our purposes, and you will need it to prepare before class and to go over the material after class.

The main class material is in the course pack that I will hand out in the first 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
updated during the semester.

4. **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.

Standard financial calculators include the HP 12C (costs about $60), the HP 10B–II (costs
about $25) 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 TAs’ review
session (after class 2) or their office hours. I have also included some useful slides in the
course pack on how to work with the calculator.

Every student of Stern is expected to be comfortable with EXCEL tools. In particular,
any Finance Area major is expected to have knowledge of these tools that extends beyond
familiarity to an individual awareness of the uses and limitations of this technology.

5. **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 will be posted here as well. Solutions to each problem set
will be posted no later than one week after its due date; solutions will not be distributed in
hard copy in class.
The class web site also contains the concept questions (see below), suggested problems, and some finance-related links and articles. There is a discussion board where the TAs and I will participate on a regular basis to answer your questions. You are encouraged to answer each others’ questions. If you have a question, try the discussion board; chances are the question has been asked and answered there already.

6. Exams, Assignments, and Grades

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 (50 percent) and participation in the concept questions on Blackboard (50 percent).

At NYU Stern, we want to ensure fair and consistent grading across our core courses. As such, grades for this course will be distributed following the Stern Grading guidelines for Core Courses at the Undergraduate College:

- 25–35% of students can expect to receive As for excellent work;
- 50–70% of students can expect to receive Bs for good or very good work;
- 5–15% of students can expect to receive Cs or less for adequate or below work.

Academic Integrity: You are responsible for adhering to the NYU Stern Student Code of Conduct, which mandates zero tolerance for cheating and plagiarism. Violations of the Code of Conduct will be prosecuted with a minimum penalty of failure for the course, as required by code rules. If you become aware of any violations of the 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 Code of Conduct. The statement is: “I pledge my honor that I have not violated the NYU Stern Code of Conduct in the completion of this exam/problem set.” It is in your best interest that potential employers know that Stern takes honesty seriously. Stern’s reputation 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 (located 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 inches by 11 inches. 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 final 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. 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 have to miss an exam, you will be required to make it up after the semester is over. No laptops or PDAs are allowed during the exam. Due to University regulations as confirmed by the Dean’s office, students must take the final exam with their assigned section. Unfortunately, I have no discretion on this matter.

Concept Questions: After every class, concept questions are posted on Blackboard under Course Documents. The concept questions test your understanding of the key ideas covered in class on that day. There are typically between 3 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 the concept questions.

Every concept test is available for ten days only, starting at the end of class. When you submit your answers, you will see a screen with your score and the correct answers. I encourage you to print or save the answers as this is the only time you will see them. I will re-post the concept questions as the midterm and final exams approach, but I will not make the answers available.

The concept questions make up half of your participation grade. I will not keep track of whether you answered the questions correctly. The concept questions are good preparation for the exam and they give you an extra incentive to keep up with the material.

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 from class. The problem sets are graded on a 5-point scale.

Late problem sets are not 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 submission. The homework questions are in the spirit of the exam
questions, but slightly easier. They are meant to help you begin to apply the tools developed in class.

**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 are included in your course material from the bookstore. Practice makes perfect: You should take the suggested problems seriously.

**Study Groups:** It is highly recommended that you regularly review the class material in your study group. Do not wait until exam time to meet with your group. By then it will be too late. Remember to hand in your own answers to the problem sets.

### 7. 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 also a short 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. I will emphasize how the course material relates 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 to refresh the statistics material.

**Course Outline:** Below is a detailed schedule of the date and topic of each class. Required readings are marked “RR” and suggested readings are marked “SR”. Handouts are marked with an “H” (they are located at the end of your course pack). Also note the homework due dates.
1. (T 1/24) **Financial Instruments.** Course overview; financial instruments.
   RR: Syllabus; BKM 1.1-4. SR: BKM 1.5-7.2.

2. (R 1/26) **Financial Markets.** Financial Markets.

3. (T 1/31) **Performance of Securities.** Present value, future value, annuities, perpetu-
   ities.
   RR: RWJ 4, 5.1-2; H 1-2.

4. (R 2/2) **Performance of Securities.** Compounding and measuring returns.
   RR: RWJ 5.3-4; BKM 5.1-2, 5.4; H 3-5. SR: BKM 5.3.

5. (T 2/7) **Portfolio Choice.** Portfolio choice and portfolio returns; Efficient portfolios
   with two risky securities.
   RR: H 6-9; BKM 5.5, 6.1-2.

6. (R 2/9) **Portfolio Choice.** Efficient portfolios with two risky securities; Optimal port-
   folios and investor preferences.
   RR: BKM 5.2, 6.1-2; H 9.
   **Homework 1 due in class.**

7. (T 2/14) **Portfolio Choice.** Efficient and optimal portfolios with a riskless asset.
   RR: BKM 5.5-6, 6.3-4.

8. (R 2/16) **Portfolio Choice.** Efficient and optimal portfolios with multiple risky assets;
   Introduction to the Capital Asset Pricing Model.

10. (R 2/23) The CAPM. Applications of the CAPM.
    RR: BKM 7.4; H 13-14. SR: BKM 7.3.

11. (T 2/28) The CAPM. Beyond the CAPM.
    RR: BKM 7.5; H 13-14.
    **Homework 2 due in class.**


15. (T 3/20) Equity Valuation. Dividend discount models and valuation ratios; Midterm evaluation.


    RR: H 17.

19. (T 4/3) **Fixed Income Securities.** Bond returns, forward rates, and the yield curve.
   RR: BKM 10.6, H 20-22.

20. (R 4/5) **Fixed Income Securities.** The yield curve; Duration.

21. (T 4/10) **Fixed Income Securities.** Duration and immunization.

22. (R 4/12) **Options.** Option basics and strategies.
    **Homework 3 due in class.**

23. (T 4/17) **Options.** Option strategies and arbitrage bounds.

24. (R 4/19) **Options.** The Black-Scholes-Merton option pricing formula.

25. (T 4/24) **Options and futures.** Futures.
    RR: BKM 17.1, 17.3-5; H 28. SR: BKM 17.2.

26. (R 4/26) **Futures.** Futures and swaps.
    RR: BKM 17.5-6.
    **Homework 4 due in class.**
27. (T 5/1) **Investment Management.** Mutual funds and hedge funds.
   SR: BKM 4, 18.

28. (R 5/3) **Review.** Final review.

* (R 5/10 and T 5/15) **Final.** Final exam.