

# Syllabus - Foundations of Financial Markets

Spring Semester 2010

C15.0002.04 and C15.0002.05

October 20, 2009

## 1 Instructor

Professor Thomas M. Mertens

Office: KMEC 9-73

Phone: (212) 998-0353

Email: [mertens@stern.nyu.edu](mailto:mertens@stern.nyu.edu)

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

Office Hours: Tue 4:00-5:00pm, Thu 11:30am-12:30pm, or by appointment.

## 2 Teaching Assistants

The teaching assistants and their office hours will be announced on the class Blackboard site and in the first class. They will teach two review sections (after classes 2 and 4). Place and time of the review sections will be announced on the class Blackboard page and in the first class.

## 3 General Information

**Class Time** The class meets twice per week on Tue and Thu from 8:00-9:15am (section 04) and from 9:30-10:45am (section 05).

The first class is on Tue 01/19, the last class is on Thu 04/29.

The final exam date will be announced.

The class will meet in T-UC25.

**Attendance and Classroom Civility** Attendance is mandatory and counts towards class participation. If you must miss a class or must arrive late, please let the professor know by e-mail beforehand. Your behavior in class should respect your classmates' desire to learn. Each lecture begins and ends exactly on time. I understand your busy schedules, but try not to come late. Because of the classroom layout, it is disruptive no matter how quiet you are. Laptops, cell phones, Smartphones and other electronic devices with wireless connections are not permitted during class. If you carry a cell phone or any other type of 'audible alert device', please 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.

**Students with Disabilities** Students whose class performance may be affected due to a disability should notify the professor during the first week of classes so that arrangements can be made in consultation with the Henry and Lucy Moses Center for Students with Disabilities <http://www.nyu.edu/csd/> to accommodate their needs.

## 4 Readings

The textbooks for this class are:

- 1 "Essentials of Investments" by Zvi Bodie, Alex Kane, Alan J. Marcus, 7<sup>th</sup> edition.
- 2 "Solutions Manual for use with Essentials of Investments" by Zvi Bodie, Alex Kane, Alan J. Marcus, Alan Marcus, 7th edition
- 3 Selected Materials from "Essentials of Corporate Finance" by Stephen A. Ross, Randolph W. Westerfield, Bradford D. Jordan, 8<sup>th</sup> edition

We will mainly use [1], abbreviated BKM below. If you have an *earlier edition* of BKM (sixth or fifth), you are fine. There are only minor changes between editions. Page and chapter numbers may vary though. If you use an older edition it is your responsibility to find out the differences with the latest edition.<sup>1</sup>

Book [2] will come in handy to solve practice questions. We will only use chapters 5 and 6 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 [3] separately on the publisher's web site.<sup>2</sup>

The main class material is the course pack which I will hand out in the first class. It is also available through the bookstore. It contains all powerpoint slides that I use in class,

---

<sup>1</sup>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.

<sup>2</sup>Go to <https://ebooks.primisonline.com>. Click on "Custom eBooks" and follow the links. Item [3]: ISBN: 0-390-169501, Order: 97155267, price: \$14.63.

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.

## 5 Calculator and Excel

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, the HP 10B-II and the TI BA-II Plus. You are expected to learn how to operate the calculator on your own. However, you can get help by attending the teaching assistants' review sections (after class 2) or their office hours. Finally, I have 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 a knowledge of these tools that extends beyond familiarity to an individual awareness of the uses and limitations of this technology.

## 6 Communication

The class web site is on Blackboard at <http://www.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

**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 of 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.

**Grades** Grades will be based on the final exam (45 percent), the midterm exam (30 percent), problem sets (15 percent) and class participation (10 percent). Class participation is strongly recommended as it will be accounted for in the determination of the final grade. The participation grade consists of class participation (50 percent) and participation in the concept questions on Blackboard (50 percent). Inappropriate classroom behavior (such as coming late repeatedly, disrupting the class, etc.) will negatively affect your final grade.

At Stern, we want to ensure fair and consistent grading across 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 A's for *excellent* work
- 50%-70% of students can expect to receive B's for *good or very good* work
- 5%-15% of students can expect to receive C's or less for *adequate or below* work

Grading is not a process of negotiation. In line with the Guidelines of the NYU Stern Undergraduate College, students are encouraged to respect the integrity and authority of the professor's grading system and discouraged from pursuing arbitrary challenges to it.

If you feel that an inadvertent error has been made in the grading of your exam or overall course grade, a request to have the grade re-evaluated can be submitted. Students should submit such requests in *writing* to the professor within 7 days of receiving the grade, including a brief written statement of why he or she believes that an error in grading has been made. Any requests will lead the professor to regrade the *entire exam*. A regrading process can thus lead to a *lower grade*.

**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. 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 or PDAs are allowed on the exam.

Due to University regulations as confirmed through the Dean's office, students must take the final examination with their assigned Section. Unfortunately, the Professor has 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 main concepts taught in the class of that day. Usually, there are 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 these concept questions. Every concept test is available for *ten days*, starting from the time the class ends. Participation in the concept questions counts towards your participation grade (it is half 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 extra incentive not to fall behind. 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.

**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 3 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.

## 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.

**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.

### Class 1: Financial Instruments (Tue 01/19)

Overview of class, Financial Instruments

RR: Syllabus, BKM 1.1-4

SR: BKM 1.5-7, 2

### Class 2: Financial Markets (Thu 01/21)

Financial Markets

RR: BKM 3.1-3, 3.5, 3.7

SR: BKM 3.4, 3.6, 3.8

### Class 3: Performance of Securities (Tue 01/26)

PV, FV, annuities, perpetuities

RR: **RWJ** 4, 5.1-2, H1-2

Class 4: Performance of Securities (Thu 01/28)

Compounding and Return measures

RR: **RWJ** 5.3-4, BKM 5.1-2,5.4, H3-5

SR: BKM 5.3

Class 5: Portfolio Theory (Tue 02/02)

Positions and Portfolio Returns, Efficient Portfolios with Two Risky Securities

RR: H6-8, BKM 5.5, BKM 6.1-2, H9

Class 6: Portfolio Theory (Thu 02/04)

Efficient Portfolios with Two Risky Securities, Optimal Portfolios and Investor Preferences

RR: BKM 6.1-2, H9, BKM 5.2

*Homework 1 is due in class.*

Class 7: Portfolio Theory (Tue 02/09)

Efficient and Optimal Portfolios with Riskless Asset

RR: BKM 5.5-6, 6.3-4

Class 8: Portfolio Theory (Thu 02/11)

Efficient and Optimal Portfolios w/ Multiple Risky Assets, Introduction to Capital Asset Pricing Model

RR: BKM 6.4-5, H10-11, BKM 7.1

SR: BKM 6.6

Class 9: Capital Asset Pricing Model (Tue 02/16)

The Capital Asset Pricing Model

RR: BKM 7.1-2, H12

Class 10: Capital Asset Pricing Model (Thu 02/18)

Applications of the CAPM

RR: BKM: 7.4-5, H13-14

SR: BKM 7.3

Class 11: Beyond the Capital Asset Pricing Model and Market Efficiency (Tue 02/23)

Beyond the CAPM, Market Efficiency

RR: BKM: 7.3-5, BKM 8

SR: BKM 9

*Homework 2 is due in class.*

Class 12: Review (Thu 02/25)

Pre-midterm review

Class 13: Midterm (Tue 03/02)

Midterm exam.

Class 14: Equity Valuation (Thu 03/04)

Dividend Discount Models and Valuation Ratios

RR: BKM 13.1-4, H16-17

SR: BKM 13.5-6

Class 15: Equity Valuation (Tue 03/09)

Dividend Discount Models and Valuation Ratios, Midterm evaluation (20 mins)

RR: BKM 13.1-4, H16-17

SR: BKM 13.5-6

Class 16: Arbitrage (Thu 03/11)

Arbitrage and the Law of One Price

RR: H15

Class 17: Fixed Income Securities (Tue 03/23)

Bond Prices and Yields

RR: BKM 10.1-4, H18-19

SR: BKM 10.5

Class 18: Fixed Income Securities (Thu 03/25)

Bond returns, Forward Rates, and Yield Curve Theories

RR: BKM 10.6, H20-22

Class 19: Fixed Income Securities (Tue 03/30)

Yield Curve Theories and Duration

RR: BKM 11.1-3, H23-24

SR: BKM 11.4

Class 20: Fixed Income Securities (Thu 04/01)

Duration and Immunization

RR: BKM 11.1-3, H23-24

SR: BKM 11.4

Class 21: Options (Tue 04/06)

Options Basics and Strategies

RR: BKM 15.1-2, H25-26

*Homework 3 is due in class.*

Class 22: Options (Thu 04/08)  
Options Strategies and Minimum Value  
RR: BKM 15.2, 16.1, H26-27  
SR: BKM 15.3-4

Class 23: Options (Tue 04/13)  
Black-Scholes Option Pricing Formula  
RR: BKM 16.2-4  
SR: BKM 16.5

Class 24: Futures and Swaps (Thu 04/15)  
Futures and Swaps  
RR: BKM 17.1, 17.3-5, H28  
SR: BKM 17.2

Class 25: Futures and Swaps (Tue 04/20)  
Futures and Swaps  
RR: BKM 17.5-6  
*Homework 4 is due in class.*

Class 26: Futures and Swaps (Thu 04/22)  
Futures and Swaps  
RR: BKM 17.5-6

Class 27: TBA (Tue 04/27)

Class 28: Review (Thu 04/29)  
Pre-final review

Final Exam