

FNCE 235/725: Fixed Income Securities
Fall 2010
Syllabus

Instructor

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Office hours are Wednesday, 1.30 – 3.00 pm. Please make an appointment by email if you like to meet with me outside of office hours. Teaching Assistants and TA office hours, to be held in the TA cubicles in the Finance Department, will be posted on the course webCafe page.

Course Description

This course covers the valuation of a wide variety of fixed income securities and their derivatives including pure discount bonds, coupon bonds, forwards and options on fixed income securities, interest-rate swaps, floating-rate notes, interest rate options, and mortgages. The course focuses on the analytic tools used in bond portfolio management and interest rate risk management. These tools include yield curve construction, duration and convexity, and formal term structure models. The course ends with an introduction to corporate bonds and credit risk.

Among topics not covered in the course are the relation between macroeconomic variables and interest rates, taxes, and multi-factor models.

Lectures

The course is in lecture format. We meet 25 times during this semester, of which 23 are lectures and discussions, and 2 in-class exams. Class participation is encouraged and can affect your grade at the margin.

FNCE 235 001 Tue/Thu 10:30 - 12:00 pm

FNCE 725 001 Tue/Thu 12:00 - 1:30 pm

FNCE 725 002 Tue/Thu 1:30 - 3:00 pm

Prerequisites

Students must have taken introductory finance and statistics.

FNCE 235: FNCE 100-101 and STAT 101

FNCE 725: FNCE 601 and STAT 621

Course Materials

1. The course pack contains lecture notes and is available online. The pack was created by Prof. Michael Gibbons during the many years he taught this course. See the course schedule below for outline of the chapters that I will cover. To assist students who have not yet decided to take the course, the first five chapters of the course pack will be posted on the course webCafe page. Please bring the relevant chapters to class.

2. There is a textbook for the course, available at the bookstore:

Suresh Sundaresan, 2009. *Fixed Income Markets and Their Derivatives*.
Third edition.

The book's way of presenting the material differs somewhat from the way it is done in the course pack. Although students are not responsible directly for the material in this book that is not covered in class, it is very helpful in mastering the material and solving homework/exam problems, as well as a general reference on the subject.

Please refer to the textbook for class topics which are not covered in the course pack. Those include for example a discussion of alternative term structure models, Black's model for interest rate options, and an introduction to credit risk.

3. Announcements, problem sets, solutions, past exams, plus additional lecture material will be made available via the course webCafe page.

4. For students who find it helpful to see the material presented in different ways, the following textbooks are suggested:

Pietro Veronesi, 2009. *Fixed Income Securities: Valuation, Risk, and Risk Management*.

John C. Hull, 2005. Options, Futures, and Other Derivative Securities. Sixth edition.

Bruce Tuckman, 2002. Fixed Income Securities: Tools for Today's Markets. Second edition.

Exams and Grades

There are two mandatory mid-term exams. The exams will be given in-class on October 14 and November 30, 2010. You must come to the section you are registered for. Each exam will count for 30% of your final grade. Another 30% of your grade will be determined by a final project. There are no verbal appeals of grades. Please provide a written statement to us as to why there is a problem. All re-grade requests must be submitted within one week after handing back the exams.

The exams will be closed-book. For the first exam, you may bring an 8 ½ x 11 piece of paper of notes. For the second exam, you may bring two such pieces of paper. The second exam concentrates on material taught since the first exam, but material presented earlier may also appear. You may bring a calculator to the exam, but not a computer. University exam rules apply. Based on previous years' grade distributions, the average final grade is a B+.

Problem Sets

Problem sets will be assigned on a near-weekly basis. I will assign them Thursdays after class, and they are due one week later at the beginning of class, marked (*) in the course schedule. All problem sets (and the final project) can be solved in groups of up to five students, and to be handed in as one write-up per group. The purpose of the problem sets is to increase your understanding of the material, provide feedback, and help you prepare for the exams.

Solutions to each problem set will be made available after your answers have been turned in. Your graded answers will be returned to a file cabinet in the Finance Department. The problem sets will be graded by giving a "check-plus," "check," "check-minus," or "no credit." The 5 best problem sets that were submitted will count towards the remaining 10% of your final grade.

Course Schedule (tentative as of August 1, 2010)

Class	Date	Topic
1	Sep 9	Ch 1: Overview of Fixed Income Securities Ch 2: The Grammar of Fixed Income Securities
2	Sep 14	Ch 3: Data for a Recurring Illustration Ch 4: Bond Valuation Using Synthetics
3	Sep 16	Ch 5: Interpreting Bond Yields Ch 6: Bond Values and the Passage of Time
4	Sep 21	Ch 7: Forward Contracts
5	Sep 23 *	Ch 8/9: Dollar Delta: Risk Measurement
6	Sep 28	Ch 10: Dollar Gamma Ch 11: Delta, Gamma, and Theta
7	Sep 30 *	Ch 11: Delta, Gamma, and Theta
8	Oct 5	Ch 13: Vasicek 1: Properties of the Short-Term Rate / Historical Data
9	Oct 7 *	Ch 14/15: Vasicek: The Term Structure Review for Exam 1
	Oct 12	Fall Break
10	Oct 14	Exam 1
11	Oct 19	Current Issues
12	Oct 21 *	Ch 16: Vasicek 4: The Greeks
13	Oct 26	Alternative Term Structure Models Introduction to Black Derman Toy
14	Oct 28 *	Ch 18: Introduction to Bond Options Ch 19: European Bond Options
15	Nov 2	Ch 20: American Bond Options
16	Nov 4 *	Ch 22/23: Bonds with Embedded Options
17	Nov 9	Ch 24: Floating Rate Notes Eurodollar Markets and LIBOR
18	Nov 11 *	Ch 25: Interest Rate Swaps
19	Nov 16	Ch 26: Options on Yields
20	Nov 18 *	The Use of Cap, Floor and Swaption Introduction to the Black Model
21	Nov 23	Ch 27: Floating Rate Notes with Embedded Options Review for Exam 2
	Nov 25	Thanksgiving
22	Nov 30	Exam 2
23	Dec 2	Ch 28: Home Mortgages Mortgage-Backed Securities
24	Dec 7	Introduction to Corporate Bonds
25	Dec 9	Modeling Credit Risk and Corporate Debt Securities Final Project due date