FNCE 235/725: Fixed Income Securities
Fall Semester 2008

Instructor:
Prof. Motohiro Yogo
E-mail: yogo@wharton.upenn.edu
Office: 2318 Steinberg Hall-Dietrich Hall
Office Hours: Wednesday 4-5 p.m.

Teaching Assistants:
Derek Ho   Adam Sherman   Robert Wang
faikam@wharton   amsherm@wharton   robertyw@wharton

Office hours are at the TA cubicles in the Finance Department (2300 SH-DH). The times
are posted on the course homepage.

Course Description:
The course covers the valuation of a wide variety of fixed income securities and its
derivatives including pure-discount bonds, coupon bonds, callable bonds, forwards and
options on fixed income securities, interest-rate swaps, floating-rate notes, and
mortgages. The course focuses on analytical tools used in bond portfolio management
and interest rate risk management. These include the construction of yield curves,
duration and convexity as measures for risk management, and term structure models.

Among relevant topics not covered in the course are the relation between macroeconomic
variables and interest rates, taxes, and multi-factor models of the term structure. Default
risk and corporate bonds are also not covered, but these topics are covered in FNCE
238/738 Funding Investments.

Prerequisites: Introductory finance and statistics.
FNCE 235: FNCE 100-101 and STAT 101-102
FNCE 725: FNCE 601 and STAT 621

Lectures:
FNCE 235, Section 1: Tuesday & Thursday 10:30-11:50, JMHH G55
FNCE 235, Section 2: Tuesday & Thursday 12:00-1:20, JMHH G55
FNCE 725: Tuesday & Thursday 1:30-2:50, JMHH G55

The lectures are based on lecture notes contained in the Course Pack. Please attend your
assigned section and bring the relevant chapters of the Course Pack to class.

Materials:
1. Course Pack: The course pack contains lecture notes and is available for purchase at Wharton Reprographics.

2. Handouts: Handouts may be distributed during the course as necessary. At the end of the term, students will be billed for the total amount of the handouts on their bursar accounts.

3. webCafe: Announcements, problem sets, solutions, and other material will be posted on the course homepage at
https://webcafe.wharton.upenn.edu/eRoom/fnce/725-fa08-1

4. Books on Reserve: For students who find it helpful to see the material presented in different ways, the following textbooks are placed on reserve at the Lippincott Library. Students are not directly responsible for the material in these books.

Hull, John C. *Options, Futures, and Other Derivatives*, seventh ed. Upper Saddle River, NJ: Pearson Education, Inc., 2008.

Sundaresan, Suresh M. *Fixed Income Markets and Their Derivatives*, second ed. Cincinnati, OH: South-Western, 2002.

Tuckman, Bruce. *Fixed Income Securities: Tools for Today's Markets*, second ed. Hoboken, NJ: John Wiley & Sons, Inc., 2002.

Requirements:
1. Midterm Exam (30% of final grade)

The midterm exam will be given in class on **Thursday, October 9**.

2. Final Exam (45% of final grade)

The final exam will be on **Wednesday, December 10, 3-5 pm** at a location to be assigned by the registrar.

3. Course Project (25% of final grade)

The course project will consist of an in-class presentation on either **Tuesday, December 2** or **Thursday, December 4.**

Makeup Policy:
Following university rules, exams may be postponed because of "illness, a death in the family, or some other unusual event." If such a circumstance arises, undergraduates must petition their dean's office for a makeup exam. MBA students must petition the MBA Program Office.

Grades:

The expected grade distribution is given in the table below. Letter grades may be augmented with a + or -. According to MBA grading rules, the bottom 10% of the FNCE 725 class will receive a QC.

FNCE 235	% of Students
A	25%
B	40%
C	30-35%
D/F	0-5%

FNCE 725	% of Students
A	25%
B	60%
C	5-15%
D/F	0-10%

Course Schedule:

Class	Date	Topic
1	9/4	Ch 1: Overview of Fixed Income Securities Ch 2: The Grammar of Fixed Income Securities
2	9/9	Ch 3: Data for a Recurring Illustration Ch 4: Bond Valuation Using Synthetics
3	9/11	Ch 5: Interpreting Bond Yields
4	9/16	Ch 6: Bond Values and the Passage of Time
5	9/18	Ch 7: Forward Contracts
6	9/23	Ch 8: Dollar Delta 1: Risk Measurement
7	9/25	Ch 9: Dollar Delta 2: Risk Management
8	9/30	Ch 10: Dollar Gamma
9	10/2	Ch 11: Delta, Gamma, and Theta
10	10/7	Ch 13: Vasicek 1: Properties of the Short-Term Rate
11	10/9	**Midterm Exam (In Class)**
	10/14	Fall Break (No Class)
12	10/16	Ch 14: Vasicek 2: The Term Structure
13	10/21	Ch 15: Vasicek 3: More Term Structure
14	10/23	Ch 16: Vasicek 4: The Greeks
15	10/28	Ch 17: Valuation by Monte Carlo Methods
16	10/30	Ch 18: Introduction to Bond Options
17	11/4	Ch 19: European Bond Options
18	11/6	Ch 20: American Bond Options Ch 21: Deja Vu
19	11/11	Ch 22: Bonds with Embedded Options 1
20	11/13	Ch 23: Bonds with Embedded Options 2
21	11/18	Ch 24: Floating Rate Notes Ch 25: Interest Rate Swaps
22	11/20	Ch 26: Options on Yields Ch 27: Floating Rate Notes with Embedded Options
23	11/25	Ch 28: Home Mortgages
	11/27	Thanksgiving Break (No Class)
24	12/2	**Course Project (In Class)**
25	12/4	**Course Project (In Class)**

Recommended Homework Problems:
Homework is not to be submitted nor is it graded. The purpose of the homework is to
increase your understanding of the material and to help you prepare for the exams. You
are encouraged to work with your classmates. Solutions will be posted on the course
homepage.

Chapter	Assignment
2	Read Appendix A. Questions 1 and 2.
4	Read Appendix A and B. Questions 1 and 4. (For Question 1, download an Excel spreadsheet "Values for Yields" from the course webpage.)
5	Read Appendix B. Questions 1 and 3.
6	Questions 1 and 2.
7	Read Appendix A. Questions 1 (except part d), 2, and 5.
8	Questions 1, 2, and 4.
9	Questions 1 and 2.
10	Questions 1-3.
11	Questions 1 and 2 (except part c).
13	Questions 1 and 2.
14	Questions 1 and 3.
15	Questions 2-4.
16	Questions 1 (parts c-f), 2, and 3.
18	Questions 1, 3, and 4.
19	Questions 1-3.
20	Questions 1-3.
22	Question 1.
23	Question 1 and 3.
24	Questions 1 and 2.
25	Questions 1 and 2.
27	Questions 1 and 2.
28	Questions 1 and 2.