

MBA 791B
Advanced Fixed Income
MOD II - 2009
10/19/2009 - 12/11/2009

Professor

Eric Ghysels (eghysels@unc.edu - McColl 4116 - Ext 29810)
Office hours: 10-12noon Tuesday. But before seeing me, try the EAQ file on the course web page and/or email me. All homework related questions should be directed first to the grader Alex Hu. He is also a resource for class material questions.

Grader

Alex Hu (Alex_Hu@kenan-flagler.unc.edu)
Office hours: 3:30-5:30 Mondays, Room 4602.

Class Time and Location

Monday 12:30-3:20pm McColl-3500

Prerequisites

Students are assumed to have taken MBA 791 or have knowledge about materials covered by MBA 791. In addition, the course is relatively quantitative, and students should be comfortable working with numbers.

Course Web page

The course website is http://www.unc.edu/~eghysels/eric_crs.html as well as postings on Blackboard. Link to Blackboard is available from the course web page. This is the source of all the information you may need to get: powerpoint presentations, problem sets, solutions, sample exams, handouts. Announcements will be posted on the web page and Blackboard throughout the semester, please check it regularly. Individual grades, however, will be uploaded to Blackboard.

Description of the Course

The objective of this course is to introduce relatively advanced techniques in fixed income pricing. The course will cover risk-neutral pricing, the use of interest rate models in pricing interest rate derivatives such as callable bonds, swaptions, interest rate futures as well as mortgaged back securities. The course is rigorous and quantitative. Students are expected to understand and apply quantitative methods covered in MBA 791. Examples illustrate important real-world applications of the theory.

Tentative Schedule

Date	Topic	Homeworks/Projects
Oct 19	CDS and Risk-neutral Pricing	
26	Interest Rate Models Calibration and Estimation	
Nov 02	Callable Bonds Guest Lecturer Anh Le, UNC	HW 1 due
09	Repo Markets Guest Lecturer Michael Fleming, Federal Reserve Bank of New York	HW 2 due
16	MIDTERM and Swaptions	Midterm rooms 2000 and 2050
23	Mortgages and MBS Guest Lecturer Dan Adler, Smith Breeden	Project 1 due
30	Treasury Bond Futures	
Dec 07	CDO Pricing	HW 3 due
14	Review Session	Project 2 due
15	FINAL EXAM	

Course materials

- **Lecture notes/slides:** Lecture notes/slides are available from Copy Center and will be posted on Blackboard and web. These are summaries of my readings of the subject and you are expected to go through these notes thoroughly, preferably before each class.
- **Recommended Text:** (FF) Fabozzi, "Fixed Income Analysis", 2nd edition, 2007. This book serves as a supplementary (not required) reading for the class. This book is used by the CFA Institute as the official textbook for the Fixed Income section. Therefore, if you plan to take the CFA test in the near future, (or if my lecture notes make you feel you want to know more about Fixed Income) then this book is for you. If you don't like to buy but like to read, you can borrow from Deena Cox (the Finance area assistant) or me.

If you miss a class, you can download all the (updated) materials distributed in class from the course website the next morning.

Grading

Although the class is based in the Capital Market Lab, you will not be assessed on your ability to use the data tools available in the lab. There will be weekly assignments, a

midterm exam and a final. They will count toward the grade as follows.

Class Participation	5%
Group projects (2)	20%
Group Participation	5%
Home works (3)	10%
Midterm	20%
Final	40%

The details are as follows:

Problem Sets: There will be three problem sets assigned during the course. These problem sets are worth a total of 10%. There are two parts to each homework. The first part contains Excel questions which must be downloaded from the course web page. Questions are individualized and self-corrected, i.e. you enter your answer and Excel will tell you whether your answer is correct. **Please do not round off your answers at all.** It is best to enter the whole formula in the the answer cell. With these self-corrected questions, as long as you work hard, your homework will be done. The second part of the homework is also given from the same Excel file. Questions in this part, however, will not be corrected by Excel. While you are encouraged to discuss homework with your classmates, answers to the problem sets must be your own. Please do not email your homework. The problem set will be due one week from the day assigned and all homework should be handed in by the end of the class. The assignments are graded on a 1 to 3 scale if you hand in your answers on time. Late problem sets will not be accepted.

Group projects: There will be two group projects for the class. You need to work in a group of between 3 to 5 members. There will be one 5-7 minute in-class group presentation for each project. You could volunteer to make presentation or I will select groups randomly. Each project is worth 10% of the course - everyone in the same group receives the same grade. In addition, group participation is worth 5% and given by your group members. By the final week, everyone should send me their ratings, on a scale of 1 to 5, of each of their group members. This way, everyone has the chance to assess everyone else's contribution to group's work.

Exams: The midterm exam will be on November 16th in rooms 2000 and 2050. The midterm will be for one hour and twenty minutes, starting 12:30am finishing 1:50pm - regular class will follow for the remaining time. The final exam is on December 15th, 5:00-8:00 PM in rooms 2500 and 2575. A Review Session will be held December 14 from 1:00-4:00pm in room 3250. The exams are based on the projects, problems and the materials taught in class. The final exam is cumulative. You will be allowed one double-sided page of notes at the midterm and two double-sided pages of notes for the final exam. There will be no makeup exams. The only exception is if you have serious health problems and you are not able to take the midterm exam. In that case you should notify me 1 day in advance and the final exam will have 60% weight. Grades are not subject to discussion except for clear grading errors. Sample exams will be distributed a few days prior to midterm and final.

Study Groups

You are encouraged to work in groups on the problem sets, but you must hand in your own answers. It is also highly recommended that you regularly discuss the readings in a study group.

Calculators

You need a calculator for this class. It is an advantage to have a financial calculator, but not a requirement. All the problems in this class can be answered with a regular one. Standard financial calculators include, for instance, Hewlett Packard 12C and 10B or Texas Instrument BA II Plus. You are supposed to learn how to use it by yourself or with your groups.