



FINANCE B40.3333 DEBT INSTRUMENTS AND MARKETS

Required Text: Bond Markets, Analysis and Strategies, 2006 Edition, by Frank J. Fabozzi, Prentice Hall
Required Calculator: Texas Instrument Business Calculator TI BAII Plus or HP 12C or HP17B

Grade is determined by 2 non cumulative exams and assignments

COURSE DESCRIPTION

The course introduces students to the characteristics of bonds, floating rate notes and money market security and calculations of price and yield. Term structure of interest rates, bootstrapping the zero curve and calculating the forward curve are examined in light of strategy building. Credit spreads and OAS are covered. Analysis of interest rate exposure is shown by estimating bond duration, convexity and DV01. Risk management techniques presented include immunization, hedging and swapping. Credit risk is discussed along with the role of credit default products to control credit risk and enhance return. Attention then turns to mortgage back securities and collateralized debt obligations.

OUTLINE OF COURSE DETAILS

TOPIC 1 INTRODUCTION TO FIXED RATE BONDS AND MONEY MARKET SECURITIES (**Read Chapters 6,7,8**)

- Fixed rate bonds versus Floating rate bonds
- Interest Added versus Discounted securities
- Role of Federal Funds market and Federal Reserve Policy
- Leverage using Repos

TOPIC 2 PRICING DEBT SECURITIES (**Read Chapters 2 and 4**)

- Pricing a fixed rate bond
- Pricing a floating rate note
- Macaulay Duration and Modified Duration
- Duration and Convexity Measures Concept and Calculations
- PV01 – Concept and Calculations

TOPIC 3 YIELD TO MATURITY AND VARIATIONS ON THE THEME (**Read Chapter 3**)

- Concept and Calculation of Yield to Maturity
- Yield to Maturity on a Fixed rate Bond
- Yield to call and yield to worst

TOPIC 4 TERM STRUCTURE OF INTEREST RATES (**Read Chapter 5**)

- Yield curve
- Bootstrapping the zero curve from the yield curve
- Par curve
- Calculation of the forward curve
- Strategies based on the forward curve.

TOPIC 5 SPREADS AND TOTAL RETURNS (**Read Chapter 17**)

- Nominal Spread
- Z-Spread
- Binomial Model and the Option Adjusted Spread

TOPIC 6 EURODOLLAR FUTURES CONTRACTS – CONCEPTS AND APPLICATION TO HEDGING FRN RISK EXPOSURE

- Review of a forward contract
- Characteristics of Futures Contract
- Characteristic of the ED futures Contract
- Hedging interest rate change risk

TOPIC 7 APPLICATION OF SWAPS , BONDS AND FLOATING RATE NOTES

- Definition of a Swap
- Applications of swaps
- Asset swaps
- Calculating the Fixed Swap Rate
- Calculating the Swap Value

TOPIC 8 RISK MANAGING LONG TERM BONDS WITH TREASURY FUTURES (**Read Chapter 26**)

- Long term Bond Forward Contracts
- Treasury Bond Futures Contracts
- Why Hedges Typically Fail
- Hedging Bond Portfolios with Futures
- Speculating Using Treasury Bond Futures

TOPIC 9 CONCEPT AND MEASURES OF DEFAULT RISK (**Read Chapter 7**)

- Default risk alone
- Credit rating change
- Credit exposure

TOPIC 10 CREDIT DERIVATIVES (Read Chapter 29)

- Spread forwards and options and swaps
- Default Protection: Why buy it? Why provide it?
- First Default Protection
- Credit linked notes
- Concept of pricing the credit default swap
- Speculating using the credit default swap index

TOPIC 11 MORTGAGE BACKED SECURITIES (**Read Chapters 10-11**)

- Reviews of mortgage payment cash flows
- Pass-through versus Pay-through
- Prepayment Risk
- Sequential products
- Prepayment management products, CMOs

TOPIC 12 COLLATERALIZED DEBT OBLIGATIONS (**Read Chapter 15**)

- Definition of the CDO
- CDO structures with and without credit default swaps