APPLIES TO ACADEMIC YEAR 2005/2006

GRA 6539 Fixed Income Securities

Program
Advanced Specialization Course (MSc), Master of Science in Business and Economics, Master of Science in Business (Finance), Master of Science in Management, Master of Science (Financial Economics)

Responsible for the course
Bernt Arne Ødegaard

Department
Financial Economics

Term
According to study plan

ECTS Credits
6

A fixed income security is a security where the potential payments from the security are written down in detail at the issue of the security. The classical example of a fixed income security is a treasury bond, which offers fixed interest payments. Since it has been issued by the treasury, there is no uncertainty about the future cash flows from the bond. The only uncertainty about this bond is the value of the future payments, which mainly depends on future interest rates. The analysis of fixed income securities is simplified by the fact that there is only one important source of uncertainty, the current and future interest rates, or term structure. However, this is also a challenge for the analysis, because this gives scope for very detailed modelling of the evolution of the term structure, which is then reflected in the prices of fixed income securities and their derivatives.

Objective
The students should achieve an understanding of the workings of fixed income markets and interest rate modelling. Emphasis is on the pricing of fixed income securities, including fixed income derivatives.

Prerequisites
GRA 6533 Theory of Finance

Compulsory literature
Books:
Sundaresan, Suresh. Fixed Income Markets and their derivatives. 2nd ed. Cincinnati: South-Western publishing. A number of additional articles will be made available.

Recommended literature

Course outline
The following gives an overview of the topics to be covered in the course. The textbook is good on institutional detail, but not detailed enough on some more specific topics. It will therefore be supplemented by a number of articles, of which some are listed here.

- Institutional
  - Types of fixed income securities.
  - Treasury instruments.
  - Issuers of fixed income securities.
- Basic pricing and management of fixed income portfolios with a flat term structure.
  - Bond calculations, pricing, yield.
  - Duration.
- The term structure of interest rates
  - Yield curve calculations (with continuous discounting) [Shiller, 1990]
  - Yield curve estimation. [Green and Ødegaard, 1997]
  - Term structure theory.
- Securitization.
- Portfolios of bonds

Duration based analysis.
Duration problems [Cox et al., 1979a]
Fixed income derivatives.
Institutional.
Basic derivatives theory.
Tree based derivatives pricing.
Construction of binomial trees. [Cox et al., 1979b].
The Ho-Lee model. [Ho and Lee, 1986]
The Black Derman Toy model. [Black et al., 1990]
Mortgage-Backed Securities.
Institutional.
The issue of prepayment.
Credit risk.
Taxation.

Computer-based tools
Will be used, Blackboard/homepage

Course structure
36 Lectures and Case discussions

Evaluation
Your course grade will be based on the following activities and weights:
Specific information regarding any aspect of student evaluation will be provided in class. It is the students responsibility to obtain this information. Please note that whilst attendance is not compullsory, it is the students responsibility to obtain any information provided in class that is not included on the course homepage/Blackboard or text book. Homepages and/or Blackboard are not designed for the purpose of students who choose not to attend class.
60% wil be based on a final exam (3 hours) , the remainder will be based on class work (in the form of a mix of some/all of the following: case write up projects, and homeworks; case presentation and class participation; in class midterm and quizzes).

Evaluation code(s)
GRA 65391class work and exam accounts for 100 % of the final grade in the course GRA 6539.

Aids at the examination
Programmable Calculator, Interest Tables. Bilingual dictionary.

Makeup exam
Re-takes are only possible at the next time a course will be held. When course evaluation consists of class participation or process elements, the whole course must me re-evaluated when a student wants to retake a exam. Retake examinations entail an extra examination fee.