APPLIES TO ACADEMIC YEAR 2007/2008

GRA 6535 Derivatives

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

Responsible for the course
Bernt Arne Ødegaard

Department
Financial Economics

Term
According to study plan

ECTS Credits
6

Language of instruction
English

Objective
The course offers a thorough understanding of the workings and pricing of derivative securities. The course covers derivative markets, derivatives payoffs, and derivative strategies. This course will provide students with an understanding of the mathematics of arbitrage pricing, the binomial model, and the mathematics of continuous time (heuristically), the Black Scholes model, and applications of and adjustments to the Black Scholes model. The course also offers a heuristic introduction to numerical methods and simple numerical recipes..

Prerequisites
GRA 6533 Financial Theory and GRA 6532 Introduction to Derivatives and Risk management

Compulsory literature
Books:
Hull, John C. 2006. Options, futures and other derivatives. 6th ed. Upper Saddle River, N.J. : Prentice Hall

Recommended literature

Course outline
1. *Introduction*
   a) Options markets
   b) Forwards and Futures
   c) Swaps
2. *Pricing*
   a) Binomial Trees
   b) Wiener Processes, Ito's Lemma, Black-Scholes-Merton and beyond
   c) The Greeks
3. *Numerical Methods and Applications*
   a) Empirical Performance of Option Pricing Models
   b) Numerical Techniques
   c) Exotic Options, Volatility Smiles, Risk Management
   d) Real Options and Credit Risk

Computer-based tools
Will be used in addition to course homepage. An example is Matlab (studentversion).

Course structure
Lectures 36 hours

Specific Information regarding any aspect of student evaluation will be provided in class. Please note that 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.

Evaluation
Your course grade will be based on the following activities and weights:
75% of the evaluation is based on a 3 hour exam at the end of the course. The remainder 25% is based on class work (in the form of a mix of some / all of the following: hand in of case write ups, projects and homeworks; case presentations and class participation; in class midterm and quizzes).
Both parts of the evaluation need to be passed in order to get a grade in the course.

Evaluation code(s)
GRA 65353 accounts for 100 % of the final grade in the course GRA 6535.

Aids at the examination
Advanced Calculator, Interest Rate Tables, Berck and Sydsæter, Economists' mathematical manual, in Norwegian or English. Bilingual dictionary.

Support materials at written examiniations are explained under exam information in our web-based student handbook. Please note use of calculator. http://www.bi.no/studenthandbook.

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.

Honor Code
Academic honesty and trust are important to all of us as individuals, and represent values that are encouraged and promoted by the honor code system. This is a most significant university tradition. Students are responsible for familiarizing themselves with the ideals of the honor code system, to which the faculty are also deeply committed.

Any violation of the honor code will be dealt with in accordance with BI’s procedures for cheating. These issues are a serious matter to everyone associated with the programs at BI and are at the heart of the honor code and academy integrity. If you have any questions about your responsibilities under the honor code, please ask.