



APPLIES TO ACADEMIC YEAR 2008/2009

## GRA 6035 Mathematics

### Program

Core Course, Master of Science in Business and Economics, Master of Science in Financial Economics

### Responsible for the course

Trond Stølen Gustavsen

### Department

Department of Economics

### Term

According to study plan

### ECTS Credits

6

### Language of instruction

English

In finance and economics, the mathematical language and techniques of mathematical analysis are extensively used.

The mathematical requirements of a graduate student go beyond the material usually taught in undergraduate courses.

This course introduces the students to the most frequently used subjects.

### Learning outcome

After completing the course, the student will be familiar with several mathematical methods and techniques that are used in advanced courses in economics and finance. The student will have developed skills in solving relevant problems.

### Prerequisites

Methods and techniques from a standard mathematics course at Bachelor level and linear algebra at the level of Preparatory course for MSc in Business and Economics, are assumed well known.

### Compulsory literature

#### Books:

Sydsæter, Knut ... et al. 2008. Further mathematics for economic analysis. 2nd ed. Harlow: Pearson Education Limited. Selected parts from chapters 1, 2, 3, 5, 6 and 11

### Recommended literature

#### Books:

Sydsæter, Knut and Peter Hammond. 2008. Essential mathematics for economic analysis. 3rd ed. Harlow : Pearson Education Limited

### Course outline

- Linear algebra, with emphasis on matrices
- Optimization in several variables, with different types of constraints
- Differential equations
- Difference equations

### Computer-based tools

Mathematical software (Maple 10 and Mathematica 5.2) may be used in lectures for illustration purposes.

### Course structure

The course is taught through lectures and problem assignments. 36 hours lecture. In addition there will be problem sessions. Please see syllabus (on Blackboard) for further details.

Specific Information regarding student evaluation will be provided in class. Please note that while attendance is not compulsory in all courses, it is the student's responsibility to obtain any

information provided in class that is not included on the course homepage/Blackboard or text book.

**Evaluation**

1 hour individual midterm exam (multiple choice - 20%).  
3 hour written individual final exam (80%).

**Evaluation code(s)**

GRA 60352 for the midterm exam (20%)  
GRA 60353 for the 3 hour written exam (80%)

**Aids at the examination**

A bilingual dictionary and BI-approved exam calculator. Exam aids at written examinations are explained under exam information in our web-based Student handbook. Please note use of calculator and dictionary. <http://www.bi.edu/studenthandbook/examaids>

**Makeup exam**

Re-takes are only possible at the next time a course will be held. When the course evaluation has a separate exam code for each part of the evaluation it is possible to retake parts of the evaluation. Otherwise, the whole course must be re-evaluated when a student wants to retake an 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.