

# Mathematics (Preparatory course)

Graduate School of Economics and Management (GSEM)

## Syllabus

Academic Year: 2011/12

Instructor: Marco Tolotti

[tolotti@unive.it](mailto:tolotti@unive.it) – <http://www.venus.unive.it/~tolotti/>

### Objectives

This course is intended to review concepts of linear algebra, calculus for several variables and some basics on optimization.

### Requirements

You are expected to be familiar with standard calculus in one variable.

### Content of the course

Linear algebra: matrix algebra, determinants, linear independence, systems of linear equations, quadratic forms.

Calculus: partial derivatives, differentials.

Optimization: unconstrained optimization, existence of solutions, the Weierstrass Theorem, first order conditions, second order conditions.

### Textbooks

R.K. Sundaram (1996) A first course in Optimization Theory, Cambridge University Press. Cambridge. [Chapters 1-4]

Additional material shall be made available on the webpage of the course.

### Exam

Written exam. Homework sets are proposed during the class.