MATHEMATICS I

- **Course code**

  8101

- **Type of course (compulsory, optional)**

  Compulsory

- **Level of course** (e.g. first, second or third cycle; sub-level if applicable)

  First cycle

- **Year of study**

  2013-2014

- **Semester**

  1st Semester

- **Number of credits allocated**

  6 ECTS Credits

- **Name of lecturer**

  Kritikos Emmanouil, Lecturer

- **Learning outcomes**

  The objective of the course is to teach the basic mathematical concepts of differential and integral calculus with emphasis on the utilisation of mathematics in the development of models that serve applications in economics and management science. Furthermore, the students use the EXCEL, MATHEMATICA, and MATLAB in applications of differential and integral calculus. The course material is designed as to develop the mathematical background needed in other courses of the curriculum

- **Mode of delivery (face-to-face, distance learning)**

  Face- to-Face

- **Prerequisites and co-requisites**

  N.A.

- **Recommended optional programme components**

  Laboratory training on EXCEL, MATHEMATICA and MATLAB

- **Course contents**

  The course material can be organised in four basic parts:

  I. Introduction – Basic concepts: Sets, Functions, Series, Limits, Elementary analytical geometry.

  II. Differential Calculus of Univariate and Multivariate Functions

  III. Integral Calculus

  IV. Applications of Mathematics in Economics and Management Science

- **Recommended or required reading**

📖 M. Abell and J. Braselton, “Mathematica by Example”, Academic Press

📖 M. Bittinger and D. Ellenbogen, “Calculus and its Applications”, Pearson Education, Inc.

📖 A. Chiang, “Fundamental Methods of Mathematical Economics”, McGraw-Hill International Editions

📖 L. Hoffmann and G. Bradley, “Calculus for Business, Economies, and the Social and Life Sciences”, McGraw-Hill Companies, Inc.

📖 M. Lial, T. Hungerford, and J. Holcomb, “Mathematics with Applications in the Management, Natural, and Social Sciences”, Pearson Education, Inc.

📖 K. Sydsaeter and P. Hammond, “Mathematics for Economic Analysis”, Prentice-Hall, Inc.

📖 S. Waner and S. Costenoble, “Applied Calculus”, Wadsworth Group

- **Planned learning activities and teaching methods**

  Teaching will include lectures, tutorial lessons and lab sessions on EXCEL, MATHEMATICA and MATLAB

- **Assessment methods assessment methods and criteria**

  The course grade will be based on a final written exam and on optional individual essays.

- **Language of instruction**

  Greek

- **Work placement(s)**

  N.A.