QUANTITATIVE METHODS IN ECONOMICS AND MANAGEMENT I

- **Course code**
  8160
- **Type of course (compulsory, optional)**
  Compulsory
- **Level of course** (e.g. first, second or third cycle; sub-level if applicable)
  N/A
- **Year of study**
  2013-2014
- **Semester**
  2nd semester
- **Number of credits allocated**
  6 ECTS Credits
- **Name of lecturer**
  Yannacopoulos Athanasios, Professor
- **Learning outcomes**
  The objectives of this course is to introduce the students to the fundamental concepts of probability, as applied to modeling business, economics and information technology issues, including a gentle introduction to simulation. The course will serve as an introduction to concepts that will further be elaborated in more specialized courses such as stochastic models, simulation of processes, finance and econometrics etc.
- **Mode of delivery (face-to-face, distance learning)**
  Face-to face teaching, tutorials, case study discussion, software lab sessions with business process modelling software (ARIS toolset), group assignment of projects
  Prerequisites and co-requisites
  N/A
- **Recommended optional programme components**
  Software lab sessions, Matlab/Octave
- **Course contents**
  - Discrete probability, discrete random variables, distributions, moments. Examples and applications in fundamental discrete distributions (Bernoulli, Poisson, Geometric etc)

- Continuous probability, continuous random variables, distribution, density, moments. Examples and application of fundamental continuous random variables (uniform, exponential, normal etc)
- Basis concepts of simulation of discrete and continuous random variables, calculation of moments, Monte-Carlo method. Applications in models of economics and management.
- Introduction to asymptotic theory, central limit theorem and applications.

- **Recommended or required reading**

  📖 Sheldon Ross, Introduction to probability models, Academic Press, 10th Edition , 2010

  📖 C. Grinstead and J. L. Snell, Introduction to probability, 2009, Orange Grove Publications

  📖 Course notes and web material by the course lecturer

- **Planned learning activities and teaching methods**

  Teaching includes lectures and tutorial lessons, take-home case study preparation, lab sessions, group assignment and presentation.

- **Assessment methods assessment methods and criteria**

  Final written exam (70%)

  Continuous assessement (30%)

  Students must achieve >= 5 grade in written exam

- **Language of instruction**

  Greek

- **Work placement(s)**

  N/A