

## Stochastic Models in Finance

**Instructors:** *A.YANNACOPOULOS*

Course Code: 61213

Course Type: Elective of Course Group 3

Course Level: Graduate (MSc)

Year of Study: A'

Semester: 2<sup>nd</sup>

ECTS: 3

Language: English

### Course Description

This course aims in introducing students in stochastic modeling in finance and the use of stochastic models in the description and forecast of prices of various assets such as stocks and indices, pricing of derivative products and bonds as well as their use in portfolio selection and risk management, focusing on models which are widely used in theory and practice. The course introduces fundamental concepts and analytic as well as computational methodologies such as for example martingale pricing methods, stochastic differential equations, simulation methods and estimation methods for financial models.

### Prerequisites

None.

### Target Learning Outcomes

Familiarize the students with the use and construction of stochastic models for finance, as well as with the necessary analytic and computational methods which are used in finance and risk management both in academic as well as in real business environments.

### Recommended Bibliography

- Shreve, S. (2005), Stochastic calculus for finance, Springer
- Yannacopoulos A. (2014) Stochastic finance (notes)

### Teaching and Learning Activities

In vivo and by distance learning, computational applications.

### Assessment and Grading Methods

Exercises during term and final project.