

## **Stochastic Models in Finance (61213)**

**Instructors: A.YANNACOPOULOS**

Core Course, 2nd semester, 3.5 ECTS units

Course level: Graduate (MSc)

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.