

## **TOPICS IN INSURANCE AND FINANCE (m63112p)**

**Instructors: ST.VAKERLOUDIS**

Core Course, 4<sup>th</sup> semester, 5 ECTS units

Course level: Graduate (MSc)

Language: Greek

### **Course Description**

Review of Basic issues in Probability Theory and Stochastic Processes, Poisson Process, Brownian motion, Lévy Processes, Applications in Financial Mathematics, Interest Rate Models, Applications in Actuarial Sciences (Risk/Ruin Theory)

### **Prerequisites**

Probability and applications using computational techniques  
Stochastic Processes and Derivative Markets

### **Target Learning Outcomes**

The students will be familiarized to practical problems and the respective management solutions from the financial/actuarial industry and they will acquire the mathematical background to be able to model and solve the problems.

### **Recommended Bibliography**

- Στοχαστικά Χρηματοοικονομικά (σημειώσεις) , Α. Γιαννακόπουλος
- Εισαγωγή στον Στοχαστικό Λογισμό, Δ. Χελιώτης
- Hull, J. C. (2015) Options, Futures, and Other Derivatives, 9th edition, Pearson
- McDonald, R. L. (2013), Derivatives Markets, 9th edition, Prentice Hall
- Shreve, S. (2005), Stochastic calculus for finance Vols. I and II, Springer
- An introduction to Lévy Processes with Applications in Finance, Lecture Notes, A. Papapantoleon
- Introductory Lectures on Fluctuations of Lévy Processes with Applications, A.E. Kyprianou

### **Teaching and Learning Activities**

One three-hour lecture per week (8 weeks).

### **Assessment and Grading Methods**

The students will be graded by a final exam at the end of the lectures. Moreover, each student will submit a short essay with respect to a topic associated to the lectures during the semester