

Agenda

- ➊ Presentation
- ➋ Brief explanation about the course
- ➌ Organization of the classes
- ➍ Evaluation method
- ➎ Bibliography

- Cláudia Nunes Philippart (Mathematics Department)
- José Gonçalves Pinto (Department of Engineering and Management)

- Five MAPs, each one solved during lectures, 30 minutes
- Average of the results.
- Dates of the MAPS:
9th March, 16th March, 23rd March, 30th March, 14th April

- 26th April, 10h30m

Overlook of the syllabus

Part I: Finance concepts

- Financial products (interest rates, stocks, options, futures)
- Arbitrage and first properties of prices of derivatives
- Binomial model: pricing an option in discrete time
(First MAP)

Overlook of the syllabus

Part II: Stochastic calculus

- Basics: Probability spaces, σ -algebras, stochastic processes, filtrations, martingales
(Second MAP)
- Brownian motion: definition, properties, transformations
- Ito's calculus: diffusions, Ito's formula
(Third MAP)

Part III: Black Scholes model

(Forth MAP)

Part IV: Real options

(Fifht MAP)

Organization of the classes

- All announcements and communication will be in the Fenix course page, and emails will be sent to the students (using the Fenix contact email). **Please check that your email address is correct.**
- Notes and exercises will be uploaded in the Fenix page.
- There is a collection of exercises and resolutions already available in the webpage.
- Notes written during the lectures will also be available in the Fenix page.
- Only registered students will have access to the material (it is not public access). **If you are not officially enrolled in the course, please contact me asap.**

- Hull, J. C. (2003). Options futures and other derivatives. Pearson Education India.
- Bjrk, T. (2009). Arbitrage theory in continuous time. Oxford university press.
- Wilmott, P. (2013). Paul Wilmott on quantitative finance. John Wiley Sons.
- Dixit, R. K., Pindyck, R. S. (2012). Investment under uncertainty. Princeton university press.