



## INTRODUCTION AUX MATHÉMATIQUES FINANCIÈRES

### INTRODUCTION TO MATHEMATICAL FINANCE

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| Lecturers : 14.0 | TC : 4.0 | PW : 0.0 | Autonomy : 0.0 | Study : 12.0 | Project : 0.0 | Language : FR

#### Objectives

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This course presents in detail the classical models used in mathematical finance in discrete and continuous times. It includes three sessions of numerical implementation. It is based on the Stochastics Processes course (MOD) given during the first part of the year.

**Keywords :** Mathematical finance, Cox-Ross-Rubinstein model, Black-Scholes model, stochastic calculus, pricing and hedging options.

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#### Programme

Cox-Ross- Rubinstein model  
Black-Scholes model and some extensions

#### Learning outcomes

#### Independent study

Objectifs :

Méthodes :

#### Core texts

Damien Lamberton et Bernard Lapeyre, *INTRODUCTION AU CALCUL STOCHASTIQUE APPLIQUÉ À LA FINANCE*, Ellipses, 1997  
Peter Tannkov et Nizar Touzi *CALCUL STOCHASTIQUE ET FINANCE (EN ANGLAIS)*, <http://www.cmap.polytechnique.fr/~touzi/Poly-MAP552.pdf>, 2018  
Damien Lamberton and Bernard Lapeyre *INTRODUCTION TO STOCHASTIC CALCULUS APPLIED TO FINANCE.*, Chapman and Hall 2nd Edition, 2008

#### Assessment

3 practical work sessions  
1 written exam