

PROBABILISTIC MODELS FOR FINANCE

(ssd. MAT/06, SECS-S/06 A.A. 2018-2019)

Program:

Introduction to credit scoring.
Classification. Curve ROC and CAP.
Logistic model for credit scoring.
Discriminant analysis for credit scoring
Introduction to mathematical finance.
Properties of market.
Probability: convergence.
Stochastic processes.
Brownian motion.
Discrete models for finance: model of Cox Ross e Rubinstein.
From CRR to Black Scholes model.
Volatility.
Black Scholes formula for pricing.
Greeks
Hedging
Introduction to models with stochastic volatility.
Simulation and Monte Carlo methods for finance.
Risk measures.

During the course data sets are analyzed by using the package R

<http://www.r-project.org/>

References

- [1] G. Castellani, M. De Felice, F. Moriconi, Manuale di Finanza III, Ed. Il Mulino Strumenti.
- [2] P. Embrechts, R. Frey, A. McNeil, Quantitative Risk Management, , Ed. Princeton University Press
- [3] Hull, C. J. Options, futures and derivatives. Pearson Prentice Hall, 2009
- [4] Glasserman P. Monte Carlo Methods in Financial Engineering. Springer, 2003.
- [5] Ross, S. M. Stochastic processes, second ed. Wiley Series in Probability and Statistics: Probability and Statistics. Wiley & Sons, New York, 1996.
- [6] Stanghellini, E. Introduzione ai metodi statistici per il Credit Scoring . Springer Italia, 2009.