

MASTER Economics Models of finance

Contact	Description	Information
Dominique HENRIET dominique.henriet@univ-amu.fr	Part of course. Code: PA-ME5BEC-BECCV25A Domain: Law, Economics, Management	http://formations.univ-amu.fr Department: Faculty of Economics and Management <i>Last modification: 19/07/2018</i>

CONTENT

The aim of this course is to give some general concepts that found the main models of finance. This in order to first better understand the jungle of financial products and second to understand the functioning of markets.

Course outline :

Chapter 1 – Introduction

1. First questions
2. Assets
3. Functioning of trading
4. Two first models : risk neutral valuation

Chapter 2 – Static model : arbitrage free condition

1. No arbitrage condition in a static model
2. Mathematical appendix

Chapter 3 – Dynamics (finite discrete models)

1. The tree of states of nature
2. Stochastic process on a tree
3. No arbitrage condition on a dynamic model
4. Risk neutral probability
5. The Cox Ross Rubinstein model
6. Reformulation : filtration and tree
7. Appendix : the example of a random walk

Chapter 4 – Continuous models

1. The "continuous random walk" : Brownian motion
2. Arbitrage free equation
3. The Black and Scholes model
4. Appendix : conditional expectation

Chapter 5 – Microstructure and behaviour models

1. The market efficiency hypothesis
2. The Competitive Rational Expectation Equilibrium
3. Bid ask spread (Glosten and Molgrom)
4. High frequency trading : arm's race
5. The capital asset pricing model

PROFESSIONAL SKILLS

- To understand the functioning of financial markets
- To know how to model financial asset value

BIBLIOGRAPHY

- G. Demange et J.-C. Rochet « Méthodes mathématiques de la finance », Economica
- Divers articles de recherche

ORGANISATION

This course is given through 24 hours of lecture at Ecole Centrale Marseille. Handouts are provided.

FUNDAMENTAL PREREQUISITES

Knowledge in probability and decision theory.

VOLUME OF TEACHINGS

- Lectures: 24 hours

TRAINING

Master's degree: Economics

- Quantitative finance and insurance

