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Syllabus for
Foundations of Asset Pricing and Portfolio Management
in EDHEC's *Risk and Investment Management Program*

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Course description

This course introduces the economic and mathematical foundations of asset pricing, portfolio selection, and risk management. It is taught in two parts.

Part I of the course starts by developing models to value and hedge derivatives on equity, exchange rates, forwards, and swaps. This part of the course also develops the mathematical tools needed to understand continuous time models of asset pricing.

Part II of the course studies the term structure of interest rates, and derivatives whose value depends on interest rates; It then looks at consumption and investment decisions under uncertainty, mean-variance single-period portfolio theory, and multiperiod portfolio theory. Part II concludes by studying the implications of capital market equilibrium for asset prices.

Course objective

The objective of the course is to give you a *deep* understanding of modern finance. The material learnt in this course will provide the theoretical foundations for the other courses that you take in the program. Please note that the material is taught at an advanced level and that you will require a good understanding of mathematics in order to learn this material.

Course assessment

Each part of the course is assessed independently. Each part of the course has a final exam that is worth 100% of the grade. The final exam must be taken at the scheduled time (no make-up exam will be given). The final exam is to be taken in class and it is a closed-book exam.

Textbooks for the course

1. van der Hoek, John and Robert J. Elliott, *Binomial Models in Finance*, Springer, 2006.

2. Back, Kerry, 2005, *A Course in Derivative Securities: Introduction To Theory and Computation*, Springer, NY.

3. Sundaram, Rangarajan K. and Sanjiv Das, *Derivatives: Principles and Practice*, McGraw Hill International Edition, 2011.

4. Danthine, Jean-Pierre and John B. Donaldson, *Intermediate Financial Theory*, Second Edition, Elsevier Academic Press Advanced Finance Series, 2005.

Prerequisites

- A willingness to work hard.

- A basic knowledge of probability, linear algebra, and calculus.

- Before coming to the first class, please read Chapter 1 of the book by van Der Hoek and Elliott, Chapters 1 and 2 of the book by Danthine and Donaldson, and the cases.