

FIN-615

Dynamic Asset Pricing

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Cursus	Sem.	Type
Finance		Obl.

Language of teaching	English
Credits	3
Session	
Exam	Written
Workload	90h
Hours	28
Lecture	28
Number of positions	

Frequency

Every year

Remark

If you would like to attend this course, please send an email to: edfi@epfl.ch to register

Summary

This course provides an advanced introduction to the methods and results of continuous time asset pricing

Content

This course provides an advanced introduction to the methods of continuous time asset pricing. Topics will include no--arbitrage restrictions on assets prices, stochastic control methods for consumption and portfolio choice, complete and incomplete equilibrium models, and an introduction to the modeling of certain frictions.

A tentative outline of the course is as follows:

Lecture 1: The market model

- Information Structure
- Price Dynamics
- Arbitrage and Admissible trading strategies
- The fundamental theorems of Asset Pricing

Lecture 2 : Portfolio and consumption choice in complete markets

- The dynamic programming approach
- The static budget constraint
- The Martingale Approach
- The Myopic Portfolio
- Hedging Demands

Lectures 3 and 4: Equilibrium models

- The Lucas Model
- The CCAPM
- Multiple Stocks and Market Completeness
- Multiple Goods Economies
- Production economies
- Multiple Agents: Aggregation and the Representative Agent

Lecture 5: Stochastic control and HJB equations

- The dynamic programming principle
- Verification theorems in finite and infinite horizon
- Merton's problem
- Explicit Solutions

Lecture 6: Incomplete information and learning

- Incomplete vs. Asymmetric Information
- Filtering in continuous-time
- Impact on Asset Prices

Lecture 7: Topic to be decided in class among the following choices:

- Portfolio constraints
- Search markets of decentralized trading
- Transaction costs
- Asset pricing bubbles

Keywords

Asset pricing, general equilibrium, optimal portfolios, optimal stochastic control, asset pricing frictions

Learning Prerequisites**Required courses**

- FIN 415: Stochastic calculus
- FIN 609: Asset pricing

Important concepts to start the course

- Foundations in probability theory and statistics
- Working knowledge of stochastic calculus
- Working knowledge of discrete asset pricing

Learning Outcomes

By the end of the course, the student must be able to:

- Construct an equilibrium asset pricing model
- Solve a stochastic control problem using verification
- Solve a portfolio and consumption choice problem using the martingale method
- Describe the key theoretical asset pricing puzzles

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Continue to work through difficulties or initial failure to find optimal solutions.
- Demonstrate the capacity for critical thinking

Teaching methods

Lectures and weekly Problems sets based on research papers.

Expected student activities

- Class attendance
- Weekly readings
- Weekly problem sets

Assessment methods

- Problem sets 30%
- Final exam 70%

Resources

Bibliography

A complete list of references will be distributed to students in the first week of the course.

Moodle Link

- <https://go.epfl.ch/FIN-615>