

Stochastic Portfolio and Arbitrage Theory

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Timetable: 12 hrs., Torre Archimede, Room 2BC/30.

Course requirements: Stochastic Analysis

Examination and grading: Oral exam

SSD:

Aim: Familiarise the participants with advanced topics in financial mathematics.

Course contents:

The first part of the course (taught by J. Ruf) will consist of the following topics:

- Introduction to stochastic portfolio theory.
- The theory of functionally generated trading strategies.
- Conditions guaranteeing that these trading strategies almost surely outperform the market.
- The question of the existence of short-term arbitrage in market models.

The second part of the course (taught by K. Kardaras) will consist of the following topics:

- Market viability under descriptive conditions on characteristics of asset prices.
- Emergence of the semimartingale property.
- Financing duality and its applications.
- Extensions to infinite-asset market models.