This course is an introduction to financial mathematics, with a focus on the pricing and hedging of contingent claims. It complements the material in Advanced Probability and Stochastic Calculus & Applications.

- **Discrete time models.** Filtrations and martingales. Arbitrage, martingale deflators and equivalent martingale measures. Attainable claims and market completeness. European and American claims. Optimal stopping.


- **Interest rate models.** Short rates, forward rates and bond prices. Markovian short rate models. The Heath–Jarrow–Morton drift condition.

**Pre-requisites**

Familiarity with measure-theoretic probability will be assumed.

**Literature**


**Additional support**

Four examples sheets will be provided and four associated examples classes will be given. There will be a one-hour revision class in the Easter Term.