

Stochastic Integrals

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Abstrakt

In this thesis we study the Wiener process and stochastic integrals. The thesis defines the basic objects of stochastic analysis and the existence of the Wiener process and some of its properties are shown. This process is then used to construct the Itô stochastic integral, where the Wiener process acts as an integrator. The Itô stochastic integral is first defined for simple processes and subsequently extended to *mathcal{F}_t*-progressively measurable processes. Then, the integral is generalized to stochastic integral driven by any continuous martingale. In the end of the thesis, the Stratonovich integral is defined and its relationship with the Itô integral is investigated.