

Abstract

This thesis concerns the Radon-Nikodym derivative, its properties, connection with measure derivative and its applications in the probability theory. The text defines the conditional probability distribution and solves the problem of uniqueness in the case of conditioning of an event which has zero probability of occurring. Next part of the text is about the conditional expectation, which is defined by the conditional distribution, and some of its properties. There are also few words about the Borel isomorphic spaces and the conditional variability and covariance. Last section of this work is about construction of the Brownian Bridge from the Wiener process and about its applications in the statistics.