The core of this work is to introduce the probabilistic techniques used in widely applied financial models and to formulate the term structure of interest rates using the continuous-time no-arbitrage framework. Stochastic processes in this work are mean-reverting, because over the long time horizon, interest rates have the tendency to revert to their average long-term levels. All the short rate models explained are Ito processes based on the Brownian motion, which onebyone define the parameters to best represent the real behavior of interest rates in continuous time. Examples and graphs are provided for illustration of the key results.