

This thesis deals with the methods for the regression analysis of recurrent event data, for which is necessary to handle the dependence of failure times of one individual. In the first part of the thesis focuses on the possible extension of Cox proportional hazards model, which is used for the censored data analysis, to the analysis of recurrent event data. The main part of the thesis is dedicated to the estimation of parameters in marginal models and their asymptotic properties. Afterwards, we deal with the estimation of parameters in marginal models for multivariate failure time data. The suitability of the marginal models is examined with the use of the simulation study.