This thesis deals with INGARCH models for a count time series. Main emphasis is placed on a linear INARCH model. Its properties are derived. Several methods of estimation are introduced - maximum likelihood method, least squares method and its modifications - and later compared in a simulation study. Main properties and maximum likelihood estimation for INGARCH(1,1) model are stated. Higher order linear INGARCH models and nonlinear INGARCH models are discussed briefly. An application of the presented models on time series of car accidents is given.