

This thesis deals with the multi-stage stochastic problems for drug distribution. In the first chapter, we introduced two-stage and multi-stage stochastic programming problems. In the second chapter, we constructed a scenario tree and introduced two methods on how to generate scenarios - the moment method and paths-based methods. In the third chapter, the transportation problem is formulated. Next, we introduced two-stage and multi-stage models, which aim to maximize the profit of pharmacies. The multi-stage models are then extended with probability constraints. In the practical part, we analyzed the historical data and eliminated the seasonality component. Then, we generated scenarios and constructed scenario trees. Lastly, we analyzed the results of the models.