

OPM 661	Business Analytics: Robust Planning in Stochastic Systems
Language	English
Aim of module	Production systems often operate in an uncertain environment due to uncertain demand, unreliable machines or random processing capacities. In order to support decisions for such uncertain manufacturing systems, we apply analytical solution approaches. The basic concepts of the analysis of Markovian queueing systems are developed in detail. Advanced topics such as queueing systems with general distributions, heterogeneities and time-dependent input parameters are analyzed. Additionally, economies of scale and the value of flexible capacities are discussed. Several methods and performance measures of robust planning and optimization are introduced.
Learning outcomes	Students learn to understand the impact of stochasticity in production systems. After this course students are familiar with the theory and practice of the analysis of stochastic manufacturing systems. They learn to adapt and to apply analytical approximations and robust planning methods.
Prerequisites	<p>Formal: At least one of the modules OPM 501, 502, 561, 581 or 591 (parallel attendance possible); other modules may be accepted upon request. None</p> <p>Recommended: Participants should be familiar with the fundamentals of production and operations management. Specifically, the course builds on topics covered in the module OPM 561. Participants who have not attended this module will require additional preparation. The course further assumes a basic knowledge in mathematics (including linear programming) and in statistics (probability distributions).</p>
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