

# OPM 661 Business Analytics: Robust Planning in Stochastic Systems

Business Analytics helps to optimize decisions for future operations systems. A major driver of the performance of operations systems is stochastic variability. For example, production systems often operate in an uncertain environment due to uncertain demand, unreliable machines, or random processing capacities. In order to support robust decisions we apply analytical solution approaches. The basic concepts of the analysis of Markovian queueing systems are explained in detail. Advanced topics such as queueing systems with general distributions, heterogeneities, and time-dependent input parameters are covered. Additionally, economies of scale and the value of flexible capacities are discussed. Several methods and performance measures of robust planning and optimization are introduced. Students become familiar with a tool for the analysis of stochastic systems. It is used to perform sensitivity analyses to develop managerial insights.

## Learning Goals

Students learn to understand the impact of stochastic variability in operations systems. After this course students are familiar with the theory and practice of the analysis of stochastic systems. They learn to adapt and to apply methods and tools for Business Analytics e.g. analytical approximations or robust planning methods to support managerial decisions.

## Prerequisites:

- Successful completion of one of the courses OPM 501, 502, 561 (recommended), 562, 581, 582 or 591 of the Area Operation Management is required (parallel attendance is possible). Other modules may be accepted upon request.
- Participants should be familiar with the fundamentals of production and operations management.

## General Information



Lecturer	Prof. Dr. Raik Stolletz
Course Format	One lecture and exercise each week, assignments
Credit Points	6 ECTS (4 SWS)
Language	English
Grading	Exam Assignments
Term	Fall Semester
Range of Application	M.Sc. MMM, M.Sc. Bus. Edu., M.Sc. Bus. Inf., M.Sc. Bus. Math., M.Sc. Econ.