

**NYU Stern School of Business**  
**Department of Information, Operations & Management Sciences**  
**OPERATIONS MANAGEMENT RESEARCH SEMINAR**

**TOPIC: Managing Patient Flow in Hospitals**  
**SPEAKER: Rainer Kolisch (TUM School of Management)**  
**DATE: Wednesday, February 3, 2016**  
**TIME: 11:00 AM-12:00PM**  
**PLACE: KMC 3-60**

**ABSTRACT**

We address the problem of planning the patient flow in hospitals. We discuss two problems. First, the scheduling of the procedures of elective patients taking into account clinical pathways as well as scarce clinical resources. The objective is to maximize the contribution margin of all patients. We present two mixed-integer programs for this problem which are embedded in a static and a rolling horizon planning approach. Employing data of a midsize hospitals, we present the impact of the models on the contribution margin and the schedules. Second, we consider a master surgery scheduling setting in which block operating room time is assigned to different surgical specialties. We propose a stochastic analytical model which calculates for a given master surgery schedule the exact demand distribution for the downstream resources intensive care unit and ward. We then discuss measures to define downstream costs resulting from the master surgery schedule and propose exact and heuristic algorithms to minimize these costs.

**BIO**

Rainer Kolisch is full professor at the TUM School of Management at Munich Institute of Technology. Dr. Kolisch obtained a Master's degree in Industrial Engineering from Darmstadt Institute of Technology and a PhD degree in Operations Research from Kiel University, Germany. He has published more than 40 papers in scholarly journals in the field of operations management. Dr. Kolisch served as associate editor of the Journal of Scheduling, OMEGA as well as Flexible Services and Manufacturing. Currently he is editor-in-chief of OR Spectrum as well as associate editor of European Journal of Decision Processes and Operations Research for Health Care. His current research is on health care operations, baggage flow at airports as well as project management and scheduling.