

SEMINAR SERIES

**Department of Quantitative Analysis and Operations Management
University of Cincinnati**

Allocation of Jobs and Resources to Work Centers

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We examine a stochastic resource allocation problem where servers are partitioned into multiple parallel work centers, and simultaneously job types are assigned to the work centers. Each job type has a distinct Poisson arrival rate and a distinct WIP weight. The goal is to minimize the total WIP cost. When servers are identical, each work center becomes a queueing system with an exponential service time distribution. A heuristic is constructed where the relative error is bounded above by $1+\epsilon$. When servers are non-identical, the server assignment discipline has a significant impact on the WIP cost. Heuristics are constructed for the random and fastest available server assignment disciplines. Theoretical bounds are developed for the relative errors of the heuristics. Also, heuristic performance is empirically evaluated.

Bio: Marc E. Posner is a Professor of Operations Research in the Integrated Systems Engineering Department at The Ohio State University. He received a B.A. in Mathematics from Brandeis University, and an M.S. and Ph.D. in Operations Research from the University of Pennsylvania. While Dr. Posner has worked on a variety of problems ranging from the construction of statistical decision rules to the decomposition of nonlinear programs, his research is primarily in integer programming, with a scheduling and production focus. Currently, he is a Departmental Editor in Scheduling and Logistics for IIE Transactions and an Associate Editor for Naval Research Logistics.

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