

CARNEGIE MELLON UNIVERSITY & THE UNIVERSITY OF PITTSBURGH

APPLIED DECISION MODELING SEMINAR SERIES

Presents

- Speaker:** *Michael J. Fry, Department of Quantitative Analysis and Operations Management, University of Cincinnati College of Business*
- Topic:** *Firefighter Staffing with Overtime, Attrition, and Random Absenteeism*
- Date & Time:** *Thursday, April 8th, 2004, 3:30 – 4:30 PM*
- Place:** *1175 Benedum Hall (Kresge Room, 11th floor), University of Pittsburgh*

There will be a reception before the talk from 3:00 – 3:30 PM outside the Kresge Room.

Abstract:

Our research examines the problem of determining optimal staffing levels for emergency personnel such as firefighters. There are several factors that make this a particularly interesting problem. Because of their social importance, there is a minimum number of firefighters required to be on-duty at any time. However, the actual number of firefighters available for assignment at any particular time is influenced by both temporary absences and permanent attrition due to retirement, injury, etc. Furthermore, due to training requirements or budgetary issues, it is often only possible to bring in a new group of firefighters once per year.

We analyze this firefighter staffing problem by relating it to traditional inventory models. We develop a robust model that allows for randomness in both temporary absences and permanent attrition, and we analytically characterize optimal solutions. We also perform numerical work that aids in establishing important managerial opportunities for cost improvement and compares our optimal solutions to heuristic solutions currently used in practice.

Biography:

Michael J. Fry is an assistant professor in the Department of Quantitative Analysis and Operations Management at the University of Cincinnati College of Business. He received his M.S.E. and Ph.D. in Industrial and Operations Engineering from the University of Michigan, and he is a summa cum laude graduate from Texas A&M University. His research interests include supply chain management, inventory control, logistics, and the stochastic modeling of production systems. Dr. Fry serves as the Educational Chairperson for the Cincinnati Chapter of the Council of Logistics Management and he is a member of the INFORMS Young Researchers Roundtable.

Additional information about the Carnegie Mellon University/University of Pittsburgh Applied Decision Modeling Seminar Series can be found at <http://www.andrew.cmu.edu/user/johnson2/AppliedOR.htm>.

Prof. Fry is available for scheduled meetings Thursday, April 8th, until 3:00pm. He will also be available for discussions during the pre-seminar reception or after the seminar. Please make appointments using the Pittsburgh Social Sciences Seminar Tracker, <http://gsiaserver1.gsia.cmu.edu/seminars/seminar.html>.