ABSTRACT: The tragic events of September 11, 2001, highlighted the need to analyze the reliability and robustness of supply chains for goods and services. While terrorists pose a particularly heinous threat, supply chains are vulnerable to a myriad of disruptions ranging from weather-related delays to plant and business failures, and from congestion-induced outages to labor shutdowns. The goals of this research are to isolate the key factors that impact supply chain reliability and robustness and to identify design principles that can be used to enhance supply chain robustness.

This talk will outline two broad areas of research. The first begins to address the question of how much money should be invested in supply chain facilities to reduce the likelihood of a disruption. This work has shown that there are two different strategic regimes in which a system may operate: in the first regime, both “hardened” and “non-hardened” facilities are employed, while in the second regime, only “hardened” sites are utilized. Additional insights from these models will be discussed. The second broad area of research develops the concept of supply chain fragility. This new concept will be defined and illustrated. Preliminary insights from this work will also be discussed in the talk.

Bio:
Mark S. Daskin is the Bette and Neison Harris Professor of Teaching Excellence in the Department of Industrial Engineering and Management Sciences at Northwestern University. Daskin received his Ph.D. from the Civil Engineering Department at M.I.T. in 1978. He also holds a B.S.C.E. degree from that department and a Certificate of Post-Graduate Study in Engineering from then University of Cambridge in England.

Daskin’s research focuses on the application and development of operations research techniques for the analysis of transportation, supply chain, and manufacturing problems. He is the author of over 50 refereed publications as well as a text entitled, Network and Discrete Location: Models, Algorithms, and Applications.

Daskin is the recipient of the Fred C. Crane Award for Distinguished Service from the Institute of Industrial Engineers (2005), the Fellow Award from both INFORMS (2004) and IIE (2006), and the IIE Technical Innovation Award (2001). He is a past editor-in-chief of both IIE Transaction and Transportation Science. In 2006, he was the president of INFORMS, the Institute for Operations Research and the Management Sciences.