DEPARTMENT of INDUSTRIAL ENGINEERING

UNIVERSITY of HOUSTON

FRIDAY SEMINAR SERIES

BROADEN HORIZONS | EXTEND MINDS



Sanjay Mehrotra, Professor Department of IEMS Northwestern University Chicago Date: Friday, Nov. 1, 2019 Time: 1 - 1:50 pm Location: SEC 105

## Data Analytics and Decisions in Healthcare using Optimization Modeling

**Abstract**: As we work on healthcare problems, we encounter issues in data-quality and quantity. We also encounter problems in multi-criteria decision making. The presentation will use case studies from sudden death prediction, national budget allocation for diabetes prevention, and kidney and liver transplantation system to illustrate technical problems arising in each of these domains. We will identify novel methodologies based on design of experiments addressing data quality. We will introduce the concept of robust decision making under weight ambiguity in multi-objective decision making. We will apply our ideas to the problem of equitable allocation of organs in the national kidney and liver transplantation system.

**Biography**: Sanjay Mehrotra is a Professor of Industrial Engineering and Management Sciences at Northwestern University, the founding director of the Center for Engineering and Health, which is a founding center of the Institute for Public Health and Medicine at Northwestern University. He is an expert in methodologies for decision making under uncertainty, and its applications to problems in Health Systems Engineering, and has made major contributions to the areas of Optimization Methodologies, Health Systems Engineering, and Operations Research. His healthcare research encompasses a wide range of topics that include predictive modeling, hospital operations modeling, and policy modeling. In the Optimization area Mehrotra is widely known for his predictor-corrector method for solving continuous optimization problems, and his many contributions to discrete and stochastic optimization problems. His research has been supported by many grants from NSF, ONR, DOE and NIH. For his research contribution, he is selected as an INFORMS Fellow in 2016. He has been the founding department co-Editor for the Healthcare Department of the journal Naval Research Logistics, has been the department editor for the Optimization department and Health Systems Engineering department for the journal IIE-Transactions, and an associate editor for the journals Operations Research and Mathematical Programming.