

*Engineering Management, Information, and Systems*  
***Seminar Series***

with these interventions. Unfortunately, treatment recommendations that result from MDPs can depend heavily on the model of the chronic disease, and there are often multiple plausible models due to conflicting data sources or differing opinions among medical experts. To address this problem, we introduce a new framework in which a decision-maker can consider multiple models of the MDP's ambiguous parameters and seeks to find a strategy that maximizes the weighted performance with respect to each of these models of the MDP. We establish connections to other models in the stochastic optimization literature, derive complexity results, and establish solution methods for solving these problems. We illustrate our approach in the context of preventative treatment for cardiovascular disease, and end with a summary of the most important conclusions of our study. This is joint work with Lauren Steimle (University of