



## IE Graduate Seminar Series



### **Dr. Andrew J. Schaefer**

Noah Harding Chair and  
Professor

Department of  
Computational and Applied  
Mathematics

Rice University

### **Freeman Hall Auditorium**

Friday, September 20  
1:25 - 2:15 pm

### **Optimal Lung Transplantation Patient Selections from a Transplant Program's Perspective**

In 2007, the Centers for Medicaid & Medicare Services (CMS) introduced new regulations intended to incentivize transplant programs to achieve better post-transplant outcomes. However, the regulations were widely criticized as they caused programs to become increasingly risk-averse and disinclined to accepting high-risk patients. We examine the problem of finding an optimal mix of patients that maximizes a program's transplant volume while guaranteeing that the risk of getting penalized under CMS regulations is below a specified threshold. To this end, we present a chance-constrained mixed-integer programming model and use it to derive analytical insight into a program's optimal behavior. We obtain a tractable approximation to this model and perform numerical experiments that validate the observed adverse impact of the regulations on lung transplant volume.

### **About the Speaker**

Andrew Schaefer joined Rice University in 2015 after spending 15 years with the Department of Industrial Engineering at the University of Pittsburgh. At the University of Pittsburgh, he was the John A. Swanson Chair in Engineering and prior to that, the William Kepler Whiteford Professor of Industrial Engineering. He was named the Outstanding Young Engineer by the Rice Engineering Alumni association in 2013. In 2007 he received the Outstanding Young Industrial Engineering Education Award from the Institute of Industrial Engineers. In 2006, he won the NSF CAREER Award and has won numerous other awards and prizes. He earned a Ph.D. in industrial and systems engineering from Georgia Tech and a master's degree in computational and applied math and a B.A. in the same discipline from Rice University.