



SMU | LYLE

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

**Research Seminar**

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



**Dr. Andrew Schaefer**  
**Noah Harding Chair and Professor**  
**Department of Computational and Applied Mathematics**  
**Rice University**

**Friday, November 15, 2019**

**11:00 a.m. – 12:00 p.m.**

**Room 383, Caruth Hall**

**Abstract:**

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.

**Biography:**

Andrew Schaefer is Noah Harding Chair and Professor of Computational and Applied Mathematics at Rice University. Previously he was John Swanson Chair at the University of Pittsburgh. He received his PhD in Industrial and Systems Engineering from Georgia Tech in 2000. His research interests include stochastic optimization methodology and its application to health care problems. In particular, he is interested in optimizing decisions arising in the treatment of a variety of diseases, including end-stage liver disease, HIV/AIDS, influenza, and cancer.

***Everyone invited and welcome!***