

GT 3821 MM3, Special Topics, 1 credit hour

Long Title: Introduction to Quantitative Decision-Making in Health Systems Fall 2019

Mini 3 – October 28 – December 3

Meeting Schedule: T Th 1:30-2:45

Instructor: Dr. Pinar Keskinocak, School of Industrial and Systems Engineering

Course Purpose

This course is part of a pilot course offering by the Institute in response to recommendations from the Center for the Next in Education and the Student Government Association. It is an effort to broaden the curriculum to offer 1-hour credit courses linked thematically with two other courses to give students insight into healthcare issues. Students may elect to take one, two, or all three courses to learn more about career opportunities in healthcare.

Health systems and medicine changed and advanced leaps and bounds over the past decades. With the availability of data and various technologies, decision-making became more complex. However, many of the decisions are still made following a “case-based” approach, based on experience and intuition, and do not utilize the advances in quantitative decision-making to the extent possible. Hence, there are many opportunities for improving individual and population health decisions, as well as the efficiency and effectiveness of healthcare delivery. This course will provide an overview of the various applications of quantitative decision-making approaches in health systems and medical decisions, exploring their potential positive impact in better evaluating trade-offs and improving the overall health and well-being of individuals and populations and efficiency and effectiveness of health systems.

Course Topics

Course topics include the following:

- Patient flow analysis and optimization in hospitals and clinics
- Outpatient and inpatient care process improvement
- Mathematical modeling of infectious and non-infectious diseases and evaluation of intervention strategies
- Resource allocation in health systems
- Quantitative methods in medical decision-making