

Math 588 – Discrete Mathematics for the LoDI Certificate Program
(Only for credit in the LoDI Certificate Program)

Content:

1. Linear Algebra (20%)
 - matrices
 - Gauss-Jordan reduction
 - inverse of a matrix
 - linear independence and basis
2. Linear Programming (30%)
 - mathematical formulation
 - matrix solution
 - graphical solution
 - Simplex method
 - duality
3. Graph Theory (35%)
 - basic concepts
 - graph model
 - trees and their properties
 - travelling salesperson problem
 - network flows
 - matching algorithms
4. Transportation Problem (15%)

Textbook:

Kolman and Beck, Elementary Linear Programming with Applications, Academic Press, 1995 (supplemented by material on graph theory)