Linear programming: basic theory and geometrical view, Simplex method and two phase method

Dual problem and duality theory

Linear integer programming, transportation, assignment problems, network flow problem and network simplex

Nonlinear programming, KKT conditions, convex program

Solving quadratic programming problems and applications in portfolio optimization and support vector machine

Suggested Books

- Linear programming: Foundation and Extension: Robert J Vanderbai
- Linear Programming: G. Hadley
- Linear Programming and Network Flows: M Bazaraa, J. J. Jarvis and H. D. Sherali
- Linear Programming: G. Chavatal
- Optimization over Integers, B. Dimitris and R. Weismantel.
- Linear and Nonlinear Programming: D. G. Luenberger and Yinyu Ye
- Numerical Optimization with Applications, S Chandra, Jayadeva and A. Mehra

Evaluation

Minor: 30 marks

Major: 40 marks

Announced short quizzes by TA during semester: 30 marks

No re-minor, no re-quiz will be held. Exams on gradescope only.
Greater than equal to 35% marks for audit pass.