



SIE 603: MATHEMATICAL PROGRAMMING

Syllabus

(6/22/07)

This course is an introduction to theory and application of mathematical optimization. The goal of this course is to endow the student with a) a solid understanding of the subject's theoretical foundation and b) the ability to apply mathematical programming techniques in the context of diverse engineering problems. Topics to be covered include a review of convex analysis (separation and support of sets, application to linear programming), convex programming (characterization of optimality, generalizations), Karush-Kuhn-Tucker conditions, constraint qualification and Lagrangian duality. The course closes with a brief introduction to dynamic optimization in discrete time.

Prerequisites: Two years of college mathematics, including linear algebra and differential equations and the ability to write computer programs.

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Office hours: M-W 10-12 am.

TA: To be defined

Textbook: "Nonlinear Programming: Theory and Algorithms" by M. S. Bazaraa, C. M. Shetty, 3rd edition, Wiley (2006)

Meetings: T-Th 1700-1815, THN A119

Grading: Two (2) in-class midterms (45%), Homework (30%), Final exam (take home) (25%)

Homework: Submit in class as hard copy