IE 3078: Convex Optimization
Spring 2009 Syllabus

Basic information

Instructor: Oleg Prokopyev, prokopyev@engr.pitt.edu
Lectures: MW 3:00-4:15 pm
Classroom: Benedum 1020
Office: Benedum 1037
Office hours: TBA
Course website: http://www.engr.pitt.edu/industrial/faculty-staff/prokopyev/ie3078/
Textbook: Yurii Nesterov, *Introductory Lectures on Convex Optimization: A Basic Course*, Kluwer Academic Publishers, 2003. ISBN: 1402-07553-7.

Prerequisites

1. Courses: Linear Programming/Operations Research or equivalent;
2. Knowledge of (a) linear algebra, (b) differential calculus, and (c) basic mathematical concepts such as sets, functions, vectors, matrices etc.
3. Some coding experience with C/C++ or Matlab. This is not a programming course, but in order to discuss computational optimization methods and algorithms it is also necessary to have some programming proficiency.
4. An interest in mathematical methods and algorithms.

Topics

This course develops a modern framework for convex optimization. The topics include introduction to convex analysis, smooth and nonsmooth convex optimization, structural optimization and duality theory.

Assignments/Exams/Grading

There will be regular homework assignments and 2 exams: 1 mid-term (in class) and the final (take-home). Tentative weighting is 40% homework, 30% mid-term and 30% final.

Attendance

No attendance will be taken, but the students are responsible for the announcements made in the class.

Supplemental texts

- Stephen Boyd and Lieven Vandenberghe. Convex Optimization, Cambridge University Press, 2006. ISBN 0 521 83378 7. Can be downloaded from http://www.stanford.edu/∼boyd/cvxbook/.
- R. Tyrrell Rockafellar. Convex Analysis, Princeton University Press, 1972.

Disability

If you have a disability for which you are or may be requesting an accomodation, you are encouraged to contact both me and Disability Resources and Services, 216 William Pitt Union, (412) 648-7890 as early as possible. DRS will verify your disability and determine reasonable accomodations for this course.