MATHEMATICAL OPTIMIZATION: QUESTION LIST

Abstract. Some notes on organization and a list of questions helping you to prepare for the exam. At the exam, write formulas, write definitions, explain concepts.

Course Organization

- 2h lectures + 2h Lab exercises per week.
- Bring your laptop to the lab.
- 80% lab attendance to pass the exercises.
- Office hours: Monday 2-3pm, Room 4.19
- felix.huber@ug.edu.pl to contact me by email.
  Write class (MathOpt) and surname in subject.
- Exam: 2h written exam; at most 1 retake. Cheating (or trying to do so) results in a fail.
- felix.huber@ug.edu.pl to contact me by email, subject MathOpt: YourSurname.
- You are expected to learn proofs discussed in the lecture, should be able to explain their basic ideas and reproduce more details on demand. You should also be able to give a short presentation on any topic treated throughout the course.

Material

(1) Lovász, lecture notes: Semidefinite programs and combinatorial optimization `https://sites.math.washington.edu/~thomas/teaching/m514_web/Lovasz_semidef.pdf`
(2) Gupta, O'Donnel - CMU's course on LP and SDP (our convention) `https://www.cs.cmu.edu/afs/cs.cmu.edu/academic/class/15859-f11/www/notes/lpsdp.pdf`
(3) Matoušek, Gärtner - Understanding and using Linear Programming `https://link.springer.com/content/pdf/10.1007/978-3-540-30717-4.pdf`
(4) Heng Yang - Semidefinite Optimization and Relaxation `https://hankyang.seas.harvard.edu/Semidefinite/` (careful: different convention for primal and dual)
(5) Blekherman et al, Semidefinite Optimization and convex algebraic geometry `https://www.mit.edu/~parrilo/sdocag/`
(6) JuMP library for Optimization `https://jump.dev/`

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