
Optimization and Simulation

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Transport and Mobility Laboratory

Organization

- Class every Tuesday from 13:15 to 17:00.
- 4 credits = 4 contact periods + 4 periods for homework
- Assignments: reading + implementation in Octave/Matlab
- Evaluation: three presentations on March 18, April 15 and May 27.
- All students in a group should be presenting something at each of the three sessions

Tentative outline

- 18.02.2014 Recap: unconstrained optimization, optimality conditions.
- 25.02.2014 Topics in constrained optimization:
 1. Constrained Newton methods
 2. Interior point methods
 3. Augmented lagrangian methods
 4. Sequential quadratic programming
- Questions & Answers
- 04.03.2014: Implementation of the project.
- 11.03.2014: Implementation (continued). Testing. Analysis of results.
- 18.03.2014: Students' presentations.

Tentative outline

- 25.03.2014: Simulation 1: Introduction, random number generation
- 01.04.2014: Discrete event simulation, Statistical analysis and bootstrapping
- 08.04.2014: Implementation of the project
- 15.04.2014: Students' presentations
- 29.04.2014: Variance reduction techniques
- 06.05.2014: Markov Chain Monte Carlo
- 13.05.2014: Implementation of the project
- 20.05.2014: Implementation of the project
- 27.05.2014: Students' presentations