
Optimization and Simulation

Michel Bierlaire

`michel.bierlaire@epfl.ch`

Transport and Mobility Laboratory

Organization

- Class every Friday from 8:15 to 12:00.
- 4 credits = 4 contact periods + 4 periods for homework
- Assignments: reading + implementation in Octave/Matlab
- Evaluation: three presentations on March 22, May 3 and June 7.
- All students in a group should be presenting something at each of the three sessions

Tentative outline

- 01.03.2013: Simulation 1: Introduction, random number generation
- 08.03.2013: Discrete event simulation
- 15.03.2013: Statistical analysis and bootstrapping
- 22.03.2013: Students' presentations
- 12.04.2013: Variance reduction techniques
- 19.04.2013: Markov Chain Monte Carlo
- 26.04.2013: Markov Chain Monte Carlo (ctd) (to be rescheduled)
- 03.05.2011: Students' presentations

Tentative outline

- 10.05.2013 Recap: unconstrained optimization, optimality conditions. (to be rescheduled)
- 17.05.2013 Topics in constrained optimization:
 1. Constrained Newton methods
 2. Interior point methods
 3. Augmented lagrangian methods
 4. Sequential quadratic programming
- Questions & Answers
- 24.05.2013: Implementation of the project.
- 31.05.2013: Implementation (continued). Testing. Analysis of results.
- 07.06.2013: Students' presentations.