

Spring 2011

711:685:02 Stochastic Programming

Instructor: Andrzej Ruszczyński
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Time: Wednesday 9:00 AM - 11:50 AM

Place: 1 WP, 402

Topics:

1. Overview of stochastic programming models.
2. Two-stage problems: Theory.
3. Two-stage problems: Methods.
4. Multi-stage problems: Theory.
5. Multi-stage problems: Methods.
6. Problems with chance constraints: theory.
7. Problems with chance constraints: methods.
8. Sample average approximation.
9. Sampling and validation techniques.
10. Mean-risk models.
11. Coherent risk measures. Optimization.
12. Two stage risk-averse optimization.
13. Stochastic dominance.
14. Optimization with stochastic dominance constraints.

I will follow this sequence of material, but not every topic will take exactly one session.

Text: A. Shapiro, D. Dentcheva, A. Ruszczyński, *Lectures on Stochastic Programming*, SIAM, Philadelphia 2009 (ISBN-13: 978-0-898716-87-0)

The text can be freely downloaded from:

<http://www2.isye.gatech.edu/~ashapiro/download.php?Down=book>

Grading: The final grade will be based on homework assignments, involving theoretical problems and computational projects, and on a take-out final exam.