

Tentative Schedule of the Course ADM II (WS 2007/08)

Lecture	Date	Session Topic	Suggested Reading
1	Oct. 17	Introduction to Linear Optimization	Chapt. 1
2	Oct. 18	Convex sets, polyhedra, extreme points, vertices, basic solutions	Sect. 2.1, 2.2
3	Oct. 24	Polyhedra in standard form, degeneracy	Sect. 2.3, 2.4
4	Oct. 25	Existence and optimality of extreme points; projections	Sect. 2.5–2.7
5	Oct. 31	Simplex method and optimality conditions	Sect. 3.1, 3.2
6	Nov. 1	Revised simplex method, simplex tableau	Sect. 3.3
7	Nov. 7	Anticycling, phase I	Sect. 3.4, 3.5
8	Nov. 8	Column geometry, computational complexity	Sect. 3.6, 3.7
9	Nov. 14	Dual linear programs	Sect. 4.1, 4.2
10	Nov. 15	Duality Theorem, Farkas Lemma	Sect. 4.3, 4.6
11	Nov. 21	Marginal costs, dual simplex method	Sect. 4.4, 4.5
12	Nov. 22	Cones, extreme rays, representation of polyhedra	Sect. 4.8, 4.9
13	Nov. 28	Sensitivity analysis	Sect. 5.1
14	Nov. 29	Global dependence on right-hand side and cost	Sect. 5.2–5.4
15	Dec. 5	Parametric programming	Sect. 5.5
16	Dec. 6	Column generation and cutting planes	Sect. 6.1–6.3
17	Dec. 12	Dantzig-Wolfe decomposition	Sect. 6.4
18	Dec. 13	The ellipsoid method I	Sect. 8.1, 8.2
19	Dec. 19	The ellipsoid method II	Sect. 8.3, 8.4
20	Dec. 20	Optimization and separation	Sect. 8.5
21	Jan. 9	Interior point methods, affine scaling algorithm	Sect. 9.1, 9.2
22	Jan. 10	Potential reduction algorithm	Sect. 9.3
23	Jan. 16	Primal path following algorithm	Sect. 9.4
24	Jan. 17	Primal-dual path following algorithm	Sect. 9.5, 9.6
25	Jan. 23	Integer programming formulations	Sect. 10.1, 10.2
26	Jan. 24	Modeling with exponentially many constraints	Sect. 10.3
27	Jan. 30	Cutting plane methods, branch & bound	Sect. 11.1, 11.2
28	Jan. 31	Dynamic programming, Lagrangean dual	Sect. 11.3, 11.4
29	Feb. 6	Approximation algorithms	Sect. 11.5
30	Feb. 7	Local search, simulated annealing, evolutionary algorithms	Sect. 11.6, 11.7
31	Feb. 13	Review	
32	Feb. 14	Review	

The entries in the last column refer to the book “Introduction to linear optimization” by Bertsimas and Tsitsiklis (Athena Scientific, 1997).