

**IOE510 Winter 2005**  
**Linear Programming I**  
**Tentative Syllabus**

**Optimization; linear programming models**

B&T 1.1, 1.2, 1.3

Lecture 1 Thu. 1/6

Lecture 2 Tue. 1/11 PS 1 Out

**Feasible regions; graphical solution approach; basic feasible solutions**

B&T 1.4, 1.5, 2.1, 2.2, 2.3, 2.5, 2.6, 2.7

Lecture 3 Thu. 1/13

Lecture 4 Tue. 1/18

Lecture 5 Thu. 1/20 PS 2 Out PS 1 Due

**Simplex method**

B&T 3.1, 3.2, 3.3

Lecture 6 Tue. 1/25

Lecture 7 Thu. 1/27

Lecture 8 Tue. 2/1 PS 3 Out PS 2 Due

**Degeneracy; simplex implementation**

B&T 2.4, 3.4, 3.5, 3.7

Lecture 9 Thu. 2/3

Lecture 10 Tue. 2/8 PS 4 Out PS 3 Due

**Exam 1**

Thu. 2/10

**Column generation; Dantzig-Wolfe decomposition; Introduction to ampl**

B&T 6.1, 6.2, 6.4,

Lecture 11 Tue. 2/15

Lecture 12	Thu. 2/17		
Lecture 13	Tue. 2/22		PS 4 Due
Lecture 14	Thu. 2/24		
Lecture 15	Tue. 3/8	PS 5 Out	

### **Duality**

B&T 4.1, 4.2, 4.3

Lecture 16	Thu. 3/10		
Lecture 17	Tue. 3/15		
Lecture 18	Thu. 3/17	PS 6 Out	PS 5 Due

### **Exam 2**

Tue. 3/22

### **Complementary slackness; sensitivity analysis; dual simplex**

B&T 4.4, 4.5, 5.1, 5.2, 5.4, 5.5

Lecture 19	Thu. 3/24		
Lecture 20	Tue. 3/29		
Lecture 21	Thu. 3/31	PS 7 Out	PS 6 Due

### **Farkas' lemma and separating hyperplanes**

B&T 4.6, 4.7, 4.8, 4.9

Lecture 22	Tue. 4/5		
Lecture 23	Thu. 4/7	PS 8 Out	PS 7 Due

### **Integer Programming**

B&T 11.2

Lecture 24	Tue. 4/12		
Lecture 25	Thu. 4/14	PS 9 Out	PS 8 Due

### **Semester Review**

Lecture 26	Tue. 4/19		PS 9 Due
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**Exam 3**

Fri. 4/22, 1:30 – 3:30 p.m.