

Math 482 - Linear Programming
University of Illinois, Urbana-Champaign

Instructor: Isabelle Shankar

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Course Time: MWF, 2:00-2:50 pm

Office Hours: Wednesday, 3:00 pm - 5:00 pm and Thursday, 1:00 pm - 2:00 pm

Course Website: Moodle

Course Description

Texts: There is no required text for this course, but you may find the following textbooks useful. I will make sure to give references to sections which correspond to each lecture.

- Combinatorial Optimization by Papadimitriou and Steiglitz.
- Understanding and Using Linear Programming by Gartner and Matousek, available as pdf via the university library.
- Linear Programming, Foundations and Extensions by Vanderbei, available as pdf via the university library.
- Integer Programming by Conforti, Cornuéjols, and Zambelli, available as pdf via the university library.

Approximate Course Outline:

- Week 1: Basic Introduction to Linear Programming
- Weeks 2-5: The Simplex Method
- Weeks 6-8: Duality
- Week 9: Spring Break
- Weeks 10-12: Graph Theory
- Week 13: Primal-Dual Method
- Weeks 14-16: Integer Programming

Homework

There will be 10 homework assignments total, but only the best 8 scores will be used for grading. I encourage students to type their homework, ideally using LaTeX, but do not require it. I will accept handwritten homework, but if I cannot read your work, I cannot award points! Furthermore, I expect fully realized solutions. That means clear explanations of your work with full sentences.

Working together with other students is highly encouraged, however, every student is expected to write up and submit their own assignments.

Grading

- Homework - 30%: Ten assignments total, but only your top 8 score will count towards your grade.
- Midterms - 40%: Three total midterms. Two will be worth 15% each, and the lowest midterm score will be worth 10%.
- Final - 30%: Friday, May 6, 1:30-4:30 p.m.

Percentage	Letter Grade
97-100	A+
94-96.5	A
90-93.5	A-
87-89.5	B+
84-86.5	B
80-83.5	B-
77-79.5	C+
74-76.5	C
70-73.5	C-
67-69.5	D+
64-66.5	D
60-63.5	D-
Below 59.5	F

A note on online vs in person plans

As of the writing of this syllabus, the university has said that in person learning will begin on January 24. As such, I plan to use the course time primarily for lectures during which everyone is free to ask questions throughout.

However, if the university changes course and we move to online learning again, we will need to adjust our semester plan and I will update you all as soon as I can on how we will move forward with this course. Tentatively, the structure would include a short prerecorded lecture by me which would be made available before the normally scheduled course time. Then the regular class period would be used for more open discussion. I will also try to answer any questions that are emailed to me during class time. The time may also be used for breakout sessions for learning in smaller groups.