

Course Outline — Spring 2016

MATH 482

LINEAR PROGRAMMING

Sections E13 E14, 1PM MWF, Room 143 Altgeld Hall

Instructor: Theo Molla, 226 Illini Hall, molla@illinois.edu

Office hours: 2:30 - 3:30 MF or by appointment

Webpage: http://www.math.uiuc.edu/~molla/2016_spring_math482

Final exam: Friday, May 6 8:00am-11:00am

OVERVIEW:

In this course, we study mathematical aspects of problems in linear and integral optimization, which are relevant in computer science and operation research. The course is based on the book *Combinatorial Optimization: Algorithms and Complexity* by C. Papadimitriou and K. Steiglitz. Some additional material will be from the following two books (which are not required): *Understanding and Using Linear Programming* by J. Matoušek and B. Gärtner (you can access a free, electronic version via the library's website) and, to a lesser extent, *Linear Programming* by V. Chvátal.

REQUIREMENTS:

- Homework:
 - There will be 10 homework assignments, which are each due in class. Each assignment will be worth 20 points for a total of 450 points.
 - If you cannot attend class, students can submit a scanned copy of their homework via email (a photo is acceptable) before class begins.
 - If the homework is received after class on the due date and before the next class, then 2 points will be deducted from the total score.
 - Students can submit at most two late homework assignments.
 - Homework will not be accepted after the next class period for any reason.
- Quizzes:
 - There will be 5 quizzes, and each will be worth 5 points for a total of 25 points.

- Midterm exams:
 - There will be three midterm tests and a make-up midterm and each is worth 100 points.
 - Midterm tests will be in the evening and for each midterm exam a class will be canceled.
 - The top three scores will be counted.
 - Students are only required to take three of the four tests.
 - Students are required to provide a valid medical excuse for ALL of the missed exams prior or soon after the exam date if they miss at least two of the four tests.
- Final exam:
 - The final exam is worth 200 points and will cover all of the course material.

WEIGHTING:

Problem sets $20 \times 10 = 200$ points, tests $100 \times 3 = 300$ points, final exam 200 points, quizzes 25 points, total 725 points. The grading scale is: $A \geq 655$ points (90%), $A^- \geq 630$ points (87%), $B^+ \geq 605$ points (83%), $B \geq 580$ points (80%), $B^- \geq 555$ points (77%), $C^+ \geq 530$ points (73%), $C \geq 505$ points (70%), $C^- \geq 475$ points (66%), $D^+ \geq 450$ points (62%), $D \geq 425$ points (59%), $D^- \geq 400$ points (55%). The scale for graduate students registered for 1 unit (4 hours) is different. Graduate students must get 20 points higher than undergraduate students to get the same grade, e.g. to get an A, a graduate students must get 675 points.

RESOURCES:

Announcements will be posted on the course webpage or will be sent via email. Collaborative study sessions are offered to aid students in understanding the material and solving problems.

PREREQUISITES:

Math 415 or equivalent