FALL 2019 - MATH 308 D200

LINEAR OPTIMIZATION (3)

Class Number: 10765 *Delivery Method: In Person*

COURSE TIMES + LOCATION:

Tu 4:30 PM – 5:20 PM
SWH 10041, Burnaby

Th 3:30 PM – 5:20 PM
SWH 10041, Burnaby

EXAM TIMES + LOCATION:

Dec 13, 2019
3:30 PM – 6:30 PM
Location: TBA

INSTRUCTOR:

Masood Masjoody
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PREREQUISITES:

MATH 150, 151, 154, or 157 and MATH 240 or 232.

Description

CALENDAR DESCRIPTION:

Linear programming modelling. The simplex method and its variants. Duality theory. Post-optimality analysis. Applications and software. Additional topics may include: game theory, network simplex algorithm, and convex sets. Quantitative.

COURSE DETAILS:

Couse topics: Theory and applications of linear programming, geometric and computational considerations, networks, applications of duality.

Outline:1. Linear Programming.

Examples - formulation of optimization problems as linear programming problems. Canonical forms for linear programming problems. Polyhedral convex sets.

2. The Simplex Algorithm.

Tucker Tableaus. The simplex algorithm for maximum tableaus and minimum tableaus. Cycling.

3. Noncanonical Linear Programming Problems.

Unconstrained variables. Equations as constraints.

4. Duality Theory

The dual simplex algorithm. Complementary slackness. The duality theorem.

5. Application: Matrix Games. Linear Programming formulation of matrix games. The von Neumann minimax theorem.

6. Other applications (as time permits).

Grading

Honmework	15%
Midterm Exam	35%
Final Exam	50%

NOTES:

THE INSTRUCTOR RESERVES THE RIGHT TO CHANGE ANY OF THE ABOVE INFORMATION.
Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the

semesters.

REQUIREMENTS:

Attendance: Lecture attendance is required, and tutorial attendance is strongly encouraged. In the event that you miss a class, it is your responsibility to get the material from another student.

Homework: Homework assignments will be announced in lectures and will also be posted on canvas. They should be completed by the indicated due dates. Homework will be collected in lecture on the due dates. Late homework submission will not be accepted. If you are unable to submit your homework in the lecture for some understandable reasons, you should contact me in advance to see if you are allowed to submit it before the due date. The homework assignments will comprise substantial portion of your grade and you will be expected to take them seriously and to write them up neatly. Zero point will be given for those who copy or duplicate the others' homework or work. Please make every effort to complete all the assigned exercises. The assigned exercises will be also used as a resource for constructing your exams.

Exams: There will be one midterm exam as well as one final exam. The midterm exam is tentatively scheduled in lecture on October 24th (Wednesday). NO makeup exam will be given. A missed midterm exam, due to your own health related problems, will have its percentage added to the final exam, provided a medical certificate is received.

Materials

REQUIRED READING:

Linear Programming and Its Applications
Strayer, James K.
ISBN: 9781461269823

REGISTRAR NOTES:

SFU's Academic Integrity web site http://www.sfu.ca/students/academicintegrity.html is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. http://www.sfu.ca/policies/gazette/student/s10-01.html

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