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### [MATH 340 201](#) (Lecture)

#### Introduction to Linear Programming

Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis. Additional topics chosen from: Karmarkar's algorithm, non-linear programming, game theory, applications.

**This course is eligible for Credit/D/Fail grading.** To determine whether you can take this course for Credit/D/Fail grading, visit the [Credit/D/Fail](#) website. You must register in the course before you can select the Credit/D/Fail grading option.

Credits: 3

Location: Vancouver

**Term 2** (Jan 02, 2013 to Apr 05, 2013)

#### Cr/D/F Grading Change Dates

Last day to change between Credit/D/Fail and percentage grading (grading options cannot be changed after this date): **January 14, 2013**

#### Withdrawal Dates

Last day to withdraw without a W standing : **January 14, 2013**

Last day to withdraw with a W standing  
(course cannot be dropped after this date) : **February 08, 2013**

Term	Day	Start Time	End Time	Building	Room
2	Tue Thu	9:30	11:00	Mathematics	<a href="#">104</a>

Instructor: [Burda, Yuri](#)

## DETAILED COURSE OUTLINE

#### Book Summary :

Title	Req'd/Opt/Rel	Author	ISBN
Linear Programming	Required	CHVATAL	9781429280518

Both sections of MATH 340 will cover the topics listed below. Here a “week” represents approximately 150 minutes of class time, not necessarily a calendar week.

**week #1** intro to linear programming; objective function, constraints, feasible solutions, standard form of an LP.

**week #2** dictionary; the simplex method; slack variables, (non-)basic variables, pivoting.

**week #3** tableau format; pitfalls in the simplex method, the Fundamental Theorem of Linear Programming.

**week #4,5** duality; the Duality Theorem, applications.

**week #6** Test #1.

**week #7** Complementary Slackness, economic significance of dual variables.

**week #8** LINDO

**week #9** the Revised Simplex Method, matrix description of dictionaries.

**week #10** the Duality Theorem, review, Test #2

**week #11** sensitivity analysis

**week #12** applications

## CALENDAR

Wed, Jan 2	Term starts
Th, Feb 7	<b>Midterm 1</b>
Mon, Feb 11	Family Day (university is closed)
Feb 18-22	Winter break
Tue, Mar 19	<b>Midterm 2</b>
Fr, Mar 29	Good Friday (university is closed)
Mon, Apr 1	Easter Monday (university is closed)
Fr, Apr 5	Last day of classes
TBA	Final Exam

Links

Notes:

<http://www2.isye.gatech.edu/~spyros/LP/LP.html>

<http://www.cs.uiuc.edu/~jeffe/teaching/algorithms/notes/25-lp.pdf>

LINDO:

<http://www.lindo.com>