MATH 340: LINEAR PROGRAMMING
January 2017

SCHEDULE: $\begin{cases} \text{Section 201, 9:30-11:00 Tue Thu in CSCI-200} \\ \text{Section 202, 12:00-13:00 Mon Wed Fri in BUCH-A103} \end{cases}$

INSTRUCTOR: Ricardo Gómez $\qquad\qquad$ Office: Math 218, phone: 604 822 3262

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OFFICE HOURS: 13:00-14:00 Mon Wed Fri and by appointment.

WEBSITE: http://www.math.ubc.ca/∼rgomez/math340/

TEXT: Main text: *Linear Programming* by Vašek Chvátal. The textbook is short of examples and is rather dense for novices but it has made the excellent choice of the dictionary format. The 'extra' chapters beyond the basics (Chapter 11 on) make good reading. ADDITIONAL REFERENCE: Omar Antolín Camarena has written excellent notes for MATH340 that complements the text.

OUTLINE:

Topic	Chapters	Weeks
• Simplex Method	1-4, 8	2
• Duality Theory	5, 9	2
• Revised Simplex Method	6, 7	2
• Sensitivity Analysis	10	2

Optional topics for remaining 5 weeks: applications and some modelling techniques (chapters 11-14), branch and bound, game theory (chapter 15), connections with geometry (chapter 17), network flow problems (chapters 19-23), non-linear programming and the Karush-Kuhn-Tucker conditions, general upper bounding (chapter 25).

GRADING: 50% final; 25% midterm; 15% assignments and 10% quizzes.

QUIZZES: Emphasis on computational problems. There will be 5 quizzes. They will be 25 minutes in length. Practice questions will be given in advance. Students at the beginning of term can opt out of this if they wish and grades will be computed accordingly.

ASSIGNMENTS: There will be 4 assignments. They will have an emphasis on theory. Some assignments will give computational questions and you will be able to utilize the computer Lab and the LINDO and LINGO software for linear programming (available in the computer lab in LSK 310; you will be given accounts) or software of your choosing. Students may work together on assignments but must write up their solutions independently. Copying is forbidden. Any 2 (or more) assignments with some virtually identical answers deemed the result of copying will be given 0 total credit. The students are reminded of the plagiarism policies of the University.

MIDTERM: $\begin{cases} \text{Section 201, Thursday 07/03/2017, 10:00 in classroom CSCI-200} \\ \text{Section 202, Friday 08/03/2017, 12:00 in classroom in BUCH-A103} \end{cases}$

FINAL: 3 hours. Date, time and place to be announced.

MISSED WORK: From time to time students may be unable to finish assignments or attend midterms or the final exam. In the case of the final exam, the students should contact the Faculty of Science office and the missed final will be handled in a formal way. In the case of the midterm, present legitimate reasons in advance. In general, no late assignments will be received and there will be no make up quizes. If you know you are going to miss one, bring your reasons in advance.