

Due: Monday, April 4th (at the start of class)

## Reminder

The final project presentations are on Monday, April 11th.

## Reading

For Wednesday, March 30th, Sections 11.1 and 11.2 of *Linear Programming: Foundations and Extensions* by R. Vanderbei. (Available on-line through SFU's Library.)

## Assignment exercises to hand in

1. (From Hillier and Lieberman) The labour union and management of a particular company have been negotiating a new labour contract. However, negotiations have now come to an impasse, with management making a “final” offer of a wage increase of \$1.10 per hour and the union making a “final” demand of a \$1.60 per hour increase. Therefore, both sides have agreed to let an impartial arbitrator set the wage increase somewhere between \$1.10 and \$1.60 per hour (inclusively).

The arbitrator has asked each side to submit to her a confidential proposal for a fair and economically reasonable wage increase (rounded to the nearest dime). From past experience, both sides know that this arbitrator normally accepts the proposal of the side that gives the most from its final figure. If neither side changes its final figure, or if they both give in the same amount, then the arbitrator normally compromises halfway between (\$1.35 in this case). Each side now needs to determine what wage increase to propose for its own maximum advantage. Formulate this problem as a two-person, zero-sum game.

2. Exercise 9.10. This problem must be solved in a spreadsheet. To submit your answers, print the final spreadsheet and, list in writing the contents of any cells that have formulae in them along with the information entered into the “solver parameters” window.

3. The case study in Chapter 9 of the text (Colgate Wave) gives a scenario where you would like to study a function whose values are given by a proprietary simulation. This function can be computed by adjusting the inputs to the Colgate Model spreadsheet available at <http://faculty.tuck.dartmouth.edu/optimization-modeling/data-files>.

1. How would you go about setting the prices for Colgate products using this spreadsheet? Assume that you only have time to evaluate about 100 price points.
2. Implement your strategy to get a good pricing strategy for the three current Colgate products.
3. Implement your strategy to get a good pricing strategy for all four Colgate products including the new Wave.

## Some other exercises you should try

Additional exercises from Chapter 9.