Due: Friday, February 12th (11:59 p.m. PT.)

References are to the course textbook (Baker, 3rd edition), except as noted.

Reading

For Wednesday, February 10th, Sections 4.3 and 4.4.

For Friday, February 12th, to the end of Chapter 4.

Exercise to hand in

Read the *Case: Hollingsworth Paper Company* at the end of Chapter 3 in the textbook.

1. Briefly summarize the company's results for the previous year. Did it make a profit before considering depreciation and taxes? What about after depreciation, but before taxes?
2. In the scenario presented, each distribution centre is supplied from the nearest plant. Suppose that instead any plant could supply any distribution centre. Could the company have improved their profitability last year by reallocating production among plants, assuming that all plants remained operating?
3. Suppose there had also been an option to close the older Nashua plant. Was there a route to profitability by closing that plant and reallocating production between among the remaining plants?
4. Consider now the scenario of expanding the St. Louis plant. Explain the impact of this potential expansion using last year's data allowing any plant to supply any distribution centre, but keeping the Nashua plant open.
5. Consider now the scenario of opening plant in Houston. Explain the impact of this potential expansion using last year's data allowing any plant to supply any distribution centre, but keeping the Nashua plant open.
6. Prepare a one page memo charting a course of action for Hollingsworth Paper Company backed by solid mathematical reasoning. This may include exploring additional scenarios beyond those above.

This problem requires detailed written answers, typeset in LaTeX. The answers must be supported by mathematical models and their solutions. The models will be implemented as spreadsheets, which will be submitted as part of your solutions.

Note that some aspects of this problem, particularly related to capital costs, are not specified. You may have to make some assumptions. In that case, you should carefully explain what they are.

Each group will send their solutions to the instructor in a single e-mail with all the relevant files (`.pdf` and `.xlsx`) attached.

Project Topic

Each group needs to find a topic for their project. Discuss potential topics among yourselves. In the second part of class on Friday, February 12th, I will talk briefly with each group about potential topics. Someone from the group should come to class with at least two potential topics to discuss, please contact me if this is difficult to arrange.

When choosing your topics, you should identify the data that you will use to develop your model, and have a plan to get it.