This review sheet is intended to cover everything that could be on the exam. However, it is possible that I may have inadvertently overlooked something. You are still responsible for everything in the chapters covered except anything that I explicitly say you are not responsible for. Therefore, if I left something off of this sheet, it can still be on the exam. There will be no multiple-choice questions. Most of the questions will be like the ones on the homework assignments, and possibly a few definition questions. I am more likely to ask questions that make you use definitions rather than have you recite them. I will probably ask one of the questions from the book at the end of the chapters.

The review session for this test will probably be Sunday, 4/3, at a time the class will determine (probably 6:00).

Chapter 6 starting at Page 242: What are the $\mathbf{MRP_L}$ and the $\mathbf{MRC_L}$ and why should they be equal? Understand what isoquant lines are. We will ignore the area where the isoquants slope upwards because it is outside of the feasible area. They act very similarly to indifference curves. The slope of the isoquant is the negative of the **MRTS** $= \mathbf{-MP_L/MP_K}$. Understand what that means. Do not worry about isoquants for perfect substitutes and for perfect complements. Understand what isoquants and isocost lines are. We will ignore the area where the isoquants slope upwards because it is outside of the feasible area. They act very similarly to indifference curves and budget constraints. Know what moves the isocost lines and be able to show those movements. Their **slope is -w/r**. Know how to find the expansion path. What is the equi-marginal principle as it applies to inputs in production. Know how to determine if there are **increasing (IRTS), decreasing (DRTS), or constant returns to scale (CRTS)**. Ignore sections 6-7 through 6-9.

Chapter 7: What are implicit and explicit costs? How do economic costs differ from accounting costs? What is the difference between short-run and long-run? Be able to plot the **SRTC, SRTVC, SRATC, SRAVC, and SRMC** curves. Derive them from the isoquant/isocost diagram by holding K constant and drawing a horizontal line at that level. **Hints on drawing them: Note that the SRMC curve must go through the minima of both the SRATC and the SRAVC curves, so draw the SRMC curve last. The distance between the SRATC and SRAVC curves is SRAFC, so those two curves must be getting closer together. Therefore, draw the SRAVC curve first, then the SRATC curve and finally the SRMC curve. Remember to start the SRMC curve at the same point as the SRAVC curve.** Also, be able to derive the **LRATC, LRTC, and LRMC** curves from the isoquant/isocost diagram using the expansion path. Understand why the LRATC curve is the envelope of the SRATC curves. Be able to draw them. Understand why the LRTC curve is the envelope of the SRTC curves. Be able to draw them. **Only** worry about the **first** diagram of the three different LRATC curves on page 295 in Figure 7-6. What is the **learning curve**? Why does it take that shape? How can we keep costs down by **outsourcing, having immigration of labor, and international trade of inputs?** Understand **breakeven analysis** including the graph of straight-line TC and straight-line TR. How does the **operating leverage** affect the diagram? What is **DOL**? How do we calculate it? What does high DOL imply about the firm's profitability? Why is it acceptable to use the SRTC curve that is straight? Ignore pages 313 - 316.

Assignment #6A to be review with Assignment #6.

1) (60 points) Draw an isoquant/iso-cost diagram. Draw it such w = \$5/L and r = \$3/K. Draw iso-cost lines for total costs of \$15, \$30, and \$45. Have the isoquants which are tangent to those three iso-cost lines be for outputs of 10, 15, and 20. Suppose the current amount of capital is the amount of capital which you would want to have to produce 15 items. Draw the appropriate line. Use your graph to find the LRTC, SRTC, SRTVC, SRTFC, LRATC, SRATC, SRAVC, SRAFC, LRMC, and SRMC for the quantities of 10, 15, and 20.

2) (10 points) Is the LRTC Curve the envelope of the SRTC Curves? Explain your logic.

3) (10 points) Is the LRMC Curve the envelope of the SRMC Curves? Explain your logic.

4) (20 points) Draw the straight-line TR/TC diagram which corresponds to a fixed cost of \$4000, a price of \$8/unit, and a marginal cost of \$6/unit. Briefly explain how you drew the graph. What is the break-even point? Show all work and briefly explain what you did. What is the DOL if they are producing 2500 items? Show all work and explain what that number means. Give at least two implications of that number.