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.

There will be no class on Friday, 3/23 because I will be at a conference.
The review session for this test will be Thursday, 2/29, at a time the class will determine.

Chapter 6: What are the production function, fixed inputs, variable inputs, short-run, long-run, TP_L, MP_L, and AP_L are. Why do the three graphs look as drawn? What are the MRP_L and the MRC_L and why should they be equal? 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. The slope of the isoquant is the negative of the MRTS = $-MP_L/MP_k$. Understand what that means. Do not worry about isoquants for perfect substitutes and for perfect complements. 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 (CTRS). 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. Understand why the LRATC may take each of the three different LRATC curves on page 295. What is the learning curve? Why does it take that shape? How can we keep costs down by outsourcing and having immigration of labor? Skip sections 7-6 to 7-7. 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.

This is the Assignment #7A which will be reviewed with Assignment #7.

1) (25 points) Suppose a firm's product sells for \$3/unit. Their fixed costs are \$1000 and their marginal costs are \$2.5/unit. Draw the break-even analysis diagram for this firm. Find the break-even sales. Suppose they are selling 2500 items. What is their DOL? Show all work and briefly explain what you did.

2) (25 points) Draw the diagram with the LRATC curve and at least four SRATC curves. Is the LRATC curve the envelope of the SRATC curves? Explain your logic.

3) (10 points) What is bad about a high DOL?

4) (25 points) We said that we can tell if there are increasing, constant, or decreasing returns to scale by looking at the LRATC curve. How can we do that? Technically, this only works if we make an assumption about the expansion path. What is that assumption? Why does it matter?

5) (15 points) Why isn't the LRMC curve the envelope of the SRMC curves?