Chapter 5 – Inventories and Cost of Sales
MGMT 1A

I. Management's Concerns – Goldilocks Principle.

Too much inventory – Liquidity is tied up; have to pay storage costs; may become obsolete
Too little inventory – Can't meet demand; lose the sale; lose customers

II. Just-in-time inventory – Minimize the time between buying and selling inventory

Buy inventory as soon as the customer wants to purchase from you

III. What is included in the merchandise inventory account?

A. Goods in Transit – If ownership has transferred to the b*uyer*___ (i.e., goods were

shipped FOB *shipping point*_) *Buyer would include these goods in period end/year end inventory balance*

B. Consignments Out – Property sent to an agent for sale, title held by consignor until sold.

1. Example: I created this painting, I own it. I hang it in your gallery for you to sell. When you sell the painting for $100,000, you keep 10%, and send me the remaining 90%. The painting is still MINE, until it is sold.

C. Damaged or Obsolete Goods – not reported in inventory **if** they cannot be sold. If they can be

sold at a reduced price, reported in inventory at N*et*_ R*ealizable*_ V*alue*___
Example of the Conservatism Principle – when choosing between 2 outcomes, pick the least favorable one

IV. Two Methods to Account for Inventory

A. Perpetual = Update the merchandise inventory account _*for each purchase and sale*_

DR: Accounts Receivable XX
CR: Sales XX
AND
DR: COGS XX
CR: Merchandise Inventory XX

1. Advantages of perpetual method = keep track of discounts on a purchase by purchase *(and sale by sale)* basis
2. Disadvantages of perpetual method = more work

B. Periodic = Update the merchandise inventory account _*at period end only*_

DR: Accounts Receivable XX
CR: Sales XX
ONLY!!!!

V. New Accounts and Computations

A.

(Net) Purchases	
+ Purchases	*- Discounts*
	- Returns
+ Freight In	
Net Purchases	

B. Cost of Goods Sold (COGS) – *This chapter is all about learning HOW to calculate COGS*

1. Beginning Inventory (at Cost) + Net Purchases = Cost of Goods Available for Sale (COGA)
2. COGA – Ending Inventory = COGS
3. Example: I had _*3 (beginning inventory*_ pens. Then I bought _*20 (purchases)*_.

   COGA = _*23*_ pens. At year-end, I have _*8 (ending inventory)*_ pens left.

   COGS = _*15*_ pens.

C. Financial Statement Effects of Merchandise Inventory
   1. Only account that is on both the Balance Sheet and Income Statement
   2. Balance Sheet – Current Asset
   3. Income Statement – Part of COGS

      a. + Sales – _*COGS*___ = Gross Profit ← *Replace COGS with formula from prior page*

      b. + Sales – *(Beginning Inventory + Net Purchases – Ending Inventory)* = Gross Profit

      c. + Sales – *Beginning Inventory – Net Purchases + Ending Inventory* = Gross Profit

   4. Errors in Inventory

      a. Ending Inventory has a _*direct*_ effect on pre-tax income *if ending inventory is overstated, pre-tax inventory will be overstated*

      b. Beginning inventory has an _*indirect*_ effect on pre-tax income *if beginning inventory is overstated, pre-tax inventory will be understated*

      c. Ending inventory becomes _*beginning inventory* in the next period

VI. 4 Methods of Periodic Inventory Valuation – all are GAAP

A. Specific Identification – Used for low number of very expensive units *(Ferrari's)*

B. Weighted Average – Used for high number of inexpensive units *(Nails at hardware store)*

C. First In First Out (FIFO) – Assume the first goods purchased are the first goods sold. *(Lettuce)*

   *inventory* on the _*balance sheet*_ approximates _*current cost*.

D. Last In First Out (LIFO) – Assume the last goods purchased are the first goods sold. *(Coal)*

   *COGS* on the _*income statement*_ approximates _*current cost*.

E. Consistency - use the same accounting method every period

   1. Exception: Change to another method allowed if it will improve financial reporting

      Company must disclose in notes to financial statements when they change methods

F. Periodic Inventory Method - Example:

1. Beginning Inventory = _20_ units, _$5__ each *(cost = $100)*

2. Activity during the year:

    a. Purchase _50_ units, _$6_ each *(cost = $300)*

    b. Purchase _50_units, _$8_ each *(cost = $400)*

    c. Sell _60_units

    d. Purchase _50_ units, _$9_ each *(cost = $450)*

    e. Sell _60_ units

    f. Purchase _30_ units, _$10_ each *(cost = $300)*

3. Calculate COGA in units = _200_ units; = __$1,550______

4. Calculate Ending Inventory in units = _80___ units
   COGA – Sales = Ending Inventory

   200 – 60 – 60 = 80

5. What is the cost of the ending inventory? *And what is COGS?*

a. Specific Identification Method: Ending Inventory = _30_ of the _$10__ units,

_30__ of the _$9__ units and _20_ of the _$8__ units left at year end.

What is the cost of ending inventory?

*(30 * $10) + (30 * $9) + (20 * $8) = $730*

What is COGS?
COGA – Ending Inventory
$1,550 - $730 = $820

b. Weighted Average Method: Ending Inventory = _80_ units

What is the cost per unit?
COGA / # of Units = $1,550 / 200 = $7.75

What is the cost of ending inventory?
*80 units * $7.75 = $620*

What is COGS
COGA – Ending Inventory
$1,550 - $620 = $920 -OR-
*Units sold = 120 * $7.75 = $920*

c. FIFO Method: Ending Inventory = _80_ units

What is the cost of ending inventory?
*(50 * $9) + (30 * $10) = $700*

What is COGS?
COGA – Ending Inventory
$1,550 - $700 = $850

d. LIFO Method: Ending Inventory = _80_ units

What is the cost of ending inventory?
*(20 * $5) + (50 * $6) + (10 * $8) = $480*

What is COGS?
COGA – Ending Inventory
$1,550 - $480 = $1,070

VII. Inventory Comparison (Assume Prices are Rising)

	FIFO	**LIFO**
Ending Inventory	*Higher (newer more expensive)*	*Lower (older, cheaper)*
COGS	*Lower*	*Higher*
Net Income	*Higher*	*Lower*
Income Tax Expense	*Higher*	*Lower*
Preferred for	*Financial reporting*	*Income Taxes*

A. Falling Prices *(everything is opposite)*

B. Book vs. Tax
   1. Congress says – if you use LIFO for tax, **have to** use LIFO for books

C. Disclosure – Must disclose which accounting method is used in notes to financial statements

VIII. Perpetual Inventory Valuation – all are GAAP *(same 4 methods)*

A. Perpetual FIFO – will always be the same ending balance as periodic FIFO

Perpetual Specific Identification is the same too

Moving Average = Perpetual version of Weighted Average. I will not hold you accountable on Homework or Exams

B. Same facts as earlier Example:

a. Beginning Inventory – _*20*__ units, _*$5*__ each

b. Purchase _*50*_ units, __*$6*_ each

c. Purchase _*50*__ units, _*$8*__ each

d. Sell _*60*__ units – which ones? *(20 @ $5) + (40 @ $6)* Remaining inventory = *(10 @ $6) +(50 @ $8)*

e. Purchase _*50*_ units, _*$9*__ each

f. Sell _*60*__units – which ones? *(10 @ $6) + (50 @ $8)* Remaining inventory = *(50 @ $9)*

g. Purchase _*30*__ units, _*$10*__ each

h. What is COGS?
*(20 * $5) + (40 * $6) + (10 * $6) + (50 * $8) = $800*

i. What is Ending Inventory?
*(50 * $9) + (30 * $10) = $750*

C. Perpetual LIFO - Same facts as earlier Example:

a. Beginning Inventory – _*20*__ units, _*$5*__ each

b. Purchase _*50*_ units, __*$6*_ each

c. Purchase _*50*__ units, _*$8*__ each

d. Sell _*60*__ units – which ones? *(50 @ $8) + (10 @ $6)* COGS = *$460*

e. Purchase _*50*__ units, _*$9*__ each

f. Sell _*$60*_ units – which ones? *(50 @ $9) + (10 @ $6)* COGS = *$510*

g. Purchase _*30*__ units, _*$10*__ each

h. What is COGS? *$460 + $510 = $970*

i. What is Ending Inventory? *(30 * $10) + ($30 * $6) + (20 * $5) = $580*

IX. Lower of Cost or Market (LCM) *Verizon buys an iPhone 10 to resell*

A. Cost = What the Company paid for the merchandise inventory *$1,000 historical cost*

B. Market = Replacement cost *$850 fair value to buy at period end*

C. If Market __<_ Cost, inventory is written down to market

D. If Market _>___ Cost, inventory no adjustment is made

E. Example: Ending inventory cost _$2,000___.

Replacement cost of ending inventory at 12/31 = __$1,500__.

What journal entry should be recorded?

A: 12/31 DR: COGS $500
CR: Merchandise Inventory $500
(To record LCM adjustment)

X. Methods of Inventory Cost Estimation – Every Company must physically count their inventory periodically

A. Periodic Physical Count

1. To maintain adequate insurance
2. To use as security for a loan
3. Verify ending inventory per accounting system

B. Gross Profit Method – Fixed markup (%) on goods *Use to estimate value of ending inventory*

1. Example:

   a. Sales = _*$1,000*_

   b. Beginning Inventory = _*$200*__

   c. Net Purchases = _*$900*_

   d. Gross Profit = _*40%*_ of sales

   *COGS = Sales * (1 – Gross Profit %) = $1,000 * 60% = $600*

   COGA = Beginning Inventory + Net Purchases = $200 + $900 = $1,100

   Ending Inventory = COGA – COGS = $1,100 - $600 = $500

C. Retail Inventory Method – Markup on goods varies

1. Example:

	Cost	Retail
Beginning Balance	*$400*	*$700*
Net Purchases	*$800*	*$1,300*
COGA	*$1,200*	*$2,000*
Sales	*N/A*	*($1,900)*
Ending Inventory	*$60*	*$100*

   a. Determine Cost to Retail percentage (use COGA) *= $1,200 / $2,000 = 0.6 or 60%*

   b. Apply to Ending Inventory *= 60% * $100 = $60*

   c. Calculate COGS = COGA – End. Inventory at Cost = *$1,200 - $60 = $1,140*

XI. Financial Analysis

A. Inventory Turnover = how many times a company turns over (sells) its inventory during a period.

Inventory Turnover = COGS / Average Inventory

B. Calculate inventory turnover for Target and Amazon:

		20Y2	20Y1
Target	Merchandise Inventory	8,992	9,497
	COGS	54,864	53,299
Amazon	Merchandise Inventory	17,174	20,497
	COGS	111,934	139,156

Target: 54,864 / (8,992 + 9,497)/2 = 5.93

Means that Target turns over (or sells through) its inventory about 6 times per year.

Amazon: 111,934 / (17,174 + 20,497)/2 = 5.94

Means that Amazon turns over (or sells through) its inventory about 6 times per year.

C. Days' Sales in Inventory = how many days worth of sales a Company has with the inventory it has on hand

*(Ending Inventory / Cost of Goods Sold) * 365*

D. Calculate days sales in inventory for Target and Amazon:

*Target: (8,992/54,864) * 365 = 59.82 days*

Means that with the inventory it had on hand at 12/31/Y2, and no additional purchases, Target will sell all that inventory by about March 1. (January 31 days + February 28 days + March 1 day)

*Amazon: (17,174/111,934) * 365 = 56.00 days*

Means Amazon sells through its inventory a couple days faster than Target; With the inventory it had on hand at 12/31/Y2, and no additional purchases, Amazon will sell all that inventory by about February 25. (January 31 days + February 25 days)