Holly Denney
OMDE 0606
Section 9040
March 11, 2001
Assignment 1, Cost Anaylsis

Assignment #1 Economics course 606
Ingredient list and unit costs

	Activity	Unit	Amount of units	Cost per unit	Multiplier: Units	Multiplier: Students	Fixed Cost -- Development: Fixed Cost	Fixed Cost -- Development: # Years	Fixed Cost -- Maintenance: Fixed Cost	Fixed Cost -- Maintenance: # Years	Variable Cost	Variable Cost: # Years
	Development											
1	Course manager	salary per annum	¼ of full-time post p.a. over three years of deve	$42,000.00	0.25		$31,500.00	3				
2	Author											
2a	Study guide	study guide = 50 pages	seven study guides	$1,800.00	7		$12,600.00	1				
2b	Course reader	course reader = 200 pages	one reader	$7,500.00	1		$7,500.00	1				
3	Editing & design	study guide = 50 pages	Eleven	$6,800.00	11		$74,800.00	1				
4	Secretarial support	salary per annum	1/8 of full-time post p.a. over three years of dev	$22,600.00	0.125		$8,475.00	3				
5	Copyright clearance	study guide = 50 pages	eleven	$2,400.00	11		$26,400.00	1				
6	Development of assignments	assignment	three	$95.00	3		$285.00	1				
	Maintenance											
7	Author	unit of 50 pp (study guide)	three	$750.00	3				$2,250.00	1		
8	Editing & design	unit of 50 pp	three	$6,800.00	3				$20,400.00	1		
	Student support											
9	Marking of assignment	assignment	three assignments per student	$21.00	3	250					$126,000.00	8
10	Student related fees	student	one student	$24.00	1	250					$48,000.00	8
11	Tuition	hour per student	fifteen tuition hours per student	$2.00	15	250					$60,000.00	8
	Production											
12	Production of study guide	study guide	seven study guides	$1.80	7	250					$25,200.00	8
13	Production of assignment	assignment	three assignments	$1.35	3	250					$8,100.00	8
14	Production of course reader	reader	one reader	$6.00	1	250					$12,000.00	8
15	Packaging and posting	package	three mailings	$6.00	3	250					$36,000.00	8
	Income											
16	Fee per student	student	one student	$370.00	1	250					$740,000.00	8
	Total Fixed Costs of Development						$161,560.00					
	Total Annual Fixed Costs of Development Per Student						$80.78					
	Total Fixed Costs of Maintenance								$22,650.00			
	Total Annual Fixed Costs of Maintenance Per Student								$22.65			
	Total Variable Costs										$315,300.00	
	Total Annual Variable Costs										$39,412.50	
	Total Annual Variable Costs Per Student										$157.65	

Holly Denney
OMDE 0606
Section 9040
March 11, 2001
Assignment 1, Cost Analysis

Assignment #1 Economics course 606
You may use the following format for your cost analysis

1	Year			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
2	No of students			250	250	250	250	250	250	250	250	2,000
3	Accumulated no of students			250	500	750	1,000	1,250	1,500	1,750	2,000	9,000
4	Cash flow	Aggregate fixed costs of development						Aggregate fixed cost of maintenance				
5	FD Depreciated (over 8 years)		$161,560	$20,195	$20,195	$20,195	$20,195	$20,195	$20,195	$20,195	$20,195	$161,560
6	FM Depreciated (over 4 years)		$22,650					$5,663	$5,663	$5,663	$5,663	$22,650
7	Fixed Costs Depreciated			$20,195	$20,195	$20,195	$20,195	$25,858	$25,858	$25,858	$25,858	$184,210
8	FD Annualized	at 10% over 8 years		$30,283	$30,283	$30,283	$30,283	$30,283	$30,283	$30,283	$30,283	$242,268
9	FM Annualized	at 10% over 4 years						$7,145	$7,145	$7,145	$7,145	$28,582
10	Fixed Costs Annualized			$30,283	$30,283	$30,283	$30,283	$37,429	$37,429	$37,429	$37,429	$270,849
		F	$270,849									
		V	$158									
11	AC= F/s+V (For F use Total Annualized Fixed Costs; only s varies)			$1,241	$699	$519	$428	$374	$338	$312	$293	$188
12	TC =F + V x s (For F use Total Annualized Fixed Costs; only s varies)			$310,262	$349,674	$389,087	$428,499	$467,912	$507,324	$546,737	$586,149	$586,149
13	Income per year		$370	$92,500	$92,500	$92,500	$92,500	$92,500	$92,500	$92,500	$92,500	$740,000
14	Accumulated income per year			$92,500	$185,000	$277,500	$370,000	$462,500	$555,000	$647,500	$740,000	

Note:
F=Fixed Cost
FD=Fixed Costs of Development
FM=Fixed costs of Maintenance
AC= Average Cost
TC=Total Cost

You are expected to to use in line 11 and 12 for F use Total Annualized Fixed Costs (line 10: under Total) and for s use always accumulated student numbers, i.e. numbers in line 3.

The grey shaded area indicates where youre inputs are expected.

In line 13 the value in the last cell muat equal the value of line 14 in year 8.

Annualization --Fixed Costs of Development			
Input	r	rate	10%
Input	n	years	8
Input	C	amount	$161,560
	$(1+r)^n$	(Intermediate value)	2.1436
	a(r,n)	Annualization factor	0.1874
Result	**C*a(r,n)**	**Annualized amount**	**$30,283**

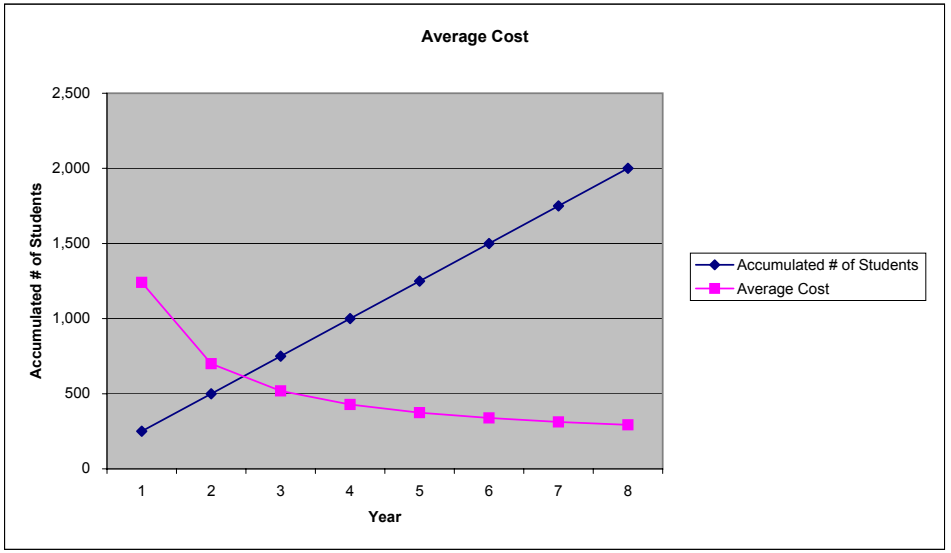
Annualization --Fixed Costs of Maintenance			
Input	r	rate	10%
Input	n	years	4
Input	C	amount	$22,650
	$(1+r)^n$	(Intermediate v	1.4641
	a(r,n)	Annualization f	0.3155
Result	**C*a(r,n)**	**Annualized an**	**$7,145**

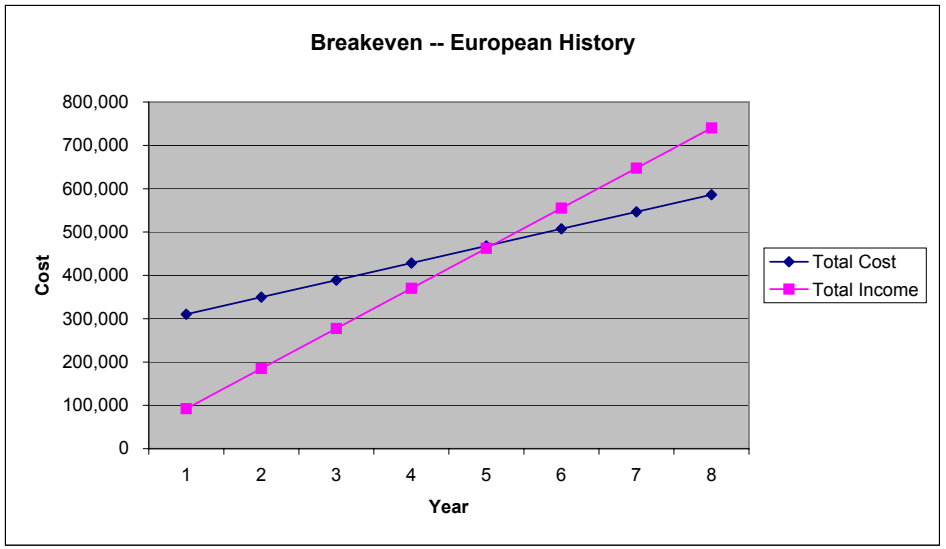
Holly Denney
OMDE 0606
Section 9040
March 11, 2001
Assignment 1, Cost Analysis

Assignment #1 Economics course 606
In order to generate the graph you may use the following format

	Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
	No of students	250	250	250	250	250	250	250	250
X-Axis :	Accumulated no of students (s)	250	500	750	1,000	1,250	1,500	1,750	2,000
Y-Axis	AC=(F/s)+V	1,241	699	519	428	374	338	312	293
	TC = F+Vxs	310,262	349,674	389,087	428,499	467,912	507,324	546,737	586,149
	I= SF*s	92,500	185,000	277,500	370,000	462,500	555,000	647,500	740,000

Note:
Take F = FD+FM





Holly Denney
OMDE 0606
Section 9040
March 11, 2001 (changed to Word May 9, 2001)
Assignment 1, Cost Analysis

1 Classify the different cost items -- see extension of chart. Fixed costs defined (Rumble, 1997, p. 23); variable costs defined (Rumble, 1997, p. 24). This exercise does not explore semi-variable costs (Rumble, 1997, p. 24) because there is no projected increase in activity across the life of the course.

2 Calculate aggregate FD and FM -- see below chart. Formulas within cells requiring calculations.

3 Calculate depreciation rate -- see "Format of Table." Depreciation calculated on life of course, excluding years of development during which "development" costs incurred, in accordance with Rumble (1997), p. 48. Rumble (p. 45) states the major problem with estimating depreciation is that the calculation is dependent upon an estimated useful life of the building or equipment. Depreciation does treat the costs as an asset of the organization and spreads the cost equally across the anticipated life of the asset. Through depreciation, the revenue realized from the asset is matched to the cost, and each year's financial statements may reflect a truer picture of cost relative to revenue.

4 Annualize FD and FM -- see "Format of Table" and annualization calculations below table.

Reasons for and against annualization: For: It looks at the cost of acquiring an asset from the standpoint of its future value and at the value of its services rendered, neither of which are dependent upon the age of any assets used in the production of this particular service. Against: (1) It is necessary to distinguish between depreciation and opportunity cost of capital (Eicher as quoted in Rumble (1997), p. 47). An asset should be depreciated to reflect its anticipated useful life and to match that cost against revenues earned during its useful life. (2) It is not clear that opportunity cost should be included in the calculation (Eicher as quoted in Rumble, p. 47). Public projects, in particular, may not have options on how to invest funds -- bond funds or grants are designated for specific purposes, and it should not be an option for the receiving organization to invest the funds in some other asset.

5 Calculate the equation of total costs -- see "Format of Table," line 12 (Rumble, 1997, p. 22)

6 Calculate the equation of average costs -- see "Format of Table," line 11 (Rumble, 1997, p. 35)

7 Calculate the break-even point -- see "Graph," "Breakeven--European History" (Rumble, 1997, p. 37)

8 Generate the graph of average costs -- see "Graph," "Average Costs" (Rumble, 1997, p. 35)

9 Summarize why … DE may be more cost-efficient -- Efficiency is defined as "the ratio of output to input. A system is cost efficient if, relative to another system, its outputs cost less per unit of input" (Rumble, 1997, p. 120). DE can operate without the need for full-time, tenure-track faculty or for extensive classroom and library facilities. DE uses written text (whether on paper or on-line) for transmission of material to be learned and written exams in place of orals (Rumble, pp. 1-2). DE "augment(s) ... human efforts by technology" (Jamison et al, as quoted in Rumble, p. 2). However, comparisons must be made with full cost information available, and the efficiencies of DE will vary depending upon the system of transmission used. DE provides an option for learning that gives more choice to individual learners -- learners may continue in full-time employment and schedule times for studying within their responsibilities to family, community, and employer, and learners may opt for the best program available rather than whatever is offered within a local area after working hours (Rumble, p. 2). One other consideration when discussing cost-efficiency is that neither costs borne by the learner nor benefits received "free" by the organization (such as access to a state-owned broadcasting system) may be factored into the equation (Rumble, p. 5). Even though teachers and learners are remote in location or time, the distinguishing feature of DE is the contact with a tutor throughout the learning process (Rumble, p. 4).