BUSS1040 Economics for Business Decision Making

UNIVERSITY OF SYDNEY BUSINESS SCHOOL · FIRST-YEAR UNDERGRADUATE

Full guide + ask Sia about BUSS1040

SIDE 1/2 WHAT MUST BE IN YOUR HEAD · definitions → formulas → decision rules → diagrams **CLOSED-BOOK MEMORY SHEET** S2 2026 · **final 60%** · Topics 6–12 ≈80% of final

1 · Exam map

COURSE.JSON · BRIEF

3 | 12 | 25 | FINAL 60%

ASSESSMENT	WEIGHT / FORMAT
Early Feedback quiz	3%
Online quizzes ×4	12% · 4% each; best 3 of 4 count
Mid-semester exam	25%
Final exam	**60%** · 120 min + 10 min reading · 20 MCQ (30) + 3 multi-part short-answer (30)

≈20% Topics 1–5 · ≈80% Topics 6–12. All Topics 1–12 remain examinable.

PERMITTED MATERIALS — OFFICIAL WORDING

Materials permitted: Handheld calculator, and a pen/pencil.
(BUSS1040 2026 S1 Final Exam FAQ page (exam Tuesday 16 June 2026) – Semester 1 2026 offering; confirm this semester's rule on the LMS (MD_FINAL_EXAM_INFORMATION_AND_FAQ_BUSS1040_Economics_for_Bu.md))

2 · Foundations that feed every calc

T1–4

MARGINAL RULE & OPPORTUNITY COST

Do more while MB > MC; stop where MB = MC.
OC of 1 X = Y given up ÷ X gained.
Trade price for X: strictly between both parties' OCs of X.

IF YOU SEE…	FIRST MOVE
productivity table	compute both OC ratios; lower OC = comparative advantage
two individual demands	invert to q(P), add quantities at each P, re-invert; respect choke-price kinks
linear D and S	set Pd(Q) = Ps(Q) → Q*, then P*
surplus	½ × Q* × vertical height to price

★ ***Movement*** = own-price change along a curve. ***Shift*** = income/tastes/related prices/expectations/buyers for D; input prices/technology/expectations/sellers for S.

3 · Elasticity selector

T4

POINT · ARC · OTHER

εd = (dQ/dP)(P/Q). For P = a - bQ: εd = -(1/b)(P/Q).
Arc = [ΔQ/avg Q] ÷ [ΔP/avg P].
εxy = %ΔQx/%ΔPy · εI = %ΔQ/%ΔI.

RESULT	MEANING / REVENUE
|εd| > 1	elastic; P↑ → TR↓
|εd| < 1	inelastic; P↑ → TR↑
|εd| = 1	TR maximum
εxy + / −	substitutes / complements
εI >1; 0…1; <0	luxury; necessity; inferior

3b · Shift outcomes & welfare

T3–4

ONLY CURVE SHIFTING	P*	Q*
D right / left	↑ / ↓	↑ / ↓
S right / left	↓ / ↑	↑ / ↓

If both curves shift, the direction shared by both effects is determinate; the other variable is ambiguous without magnitudes. Name the shifter, move the curve, then read the new equilibrium —do not merely state "demand changes".

Linear D: CS = ½(choke price - P*)Q*.
Linear S: PS = ½(P* - supply intercept)Q*.
Total surplus is maximised where MB = MC.

PPF recall: inside = attainable but inefficient; on = efficient; outside = infeasible with current resources. Straight line → constant OC; bowed-out frontier → increasing OC as resources become less suited to the expanding good.

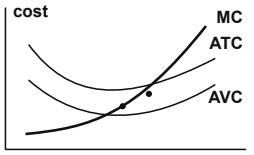
4 · Costs: recite the family

T2

IDENTITIES

TC = FC + VC · ATC = TC/q · AVC = VC/q · AFC = FC/q = ATC - AVC.
MC = ΔTC/Δq = dTC/dq.
If TC = F + aq + bq², then MC = a + 2bq.

Geometry: AFC falls continuously; ATC and AVC are U-shaped; MC cuts AVC and ATC at their minima from below. Short run: a fixed input and unavoidable FC. Long run: all inputs variable.



MC crosses each average curve exactly where the average stops falling.

5 · Perfect competition

T5 · FINAL FOUNDATION

OUTPUT → DECISION → PROFIT

Price-taker: P = MR = AR.
Choose q where P = MC on rising MC.
Profit = TR - TC = q(P - ATC).

PRICE POSITION	SHORT RUN	LONG RUN
P ≥ ATC	produce; profit ≥ 0	stay; profit attracts entry if >0
AVC ≤ P < ATC	**produce at a loss**: covers VC + some FC	exit if it persists
P < AVC	**shut down**, q = 0	exit

Firm supply = rising MC above minimum AVC. Long-run industry equilibrium with free entry/exit: P = min ATC = MC and economic profit = 0. Positive profit is not a stable long-run outcome.

EXAM CUE ***Never compare P with ATC before the short-run AVC test. "Makes a loss" does not by itself mean shut down.***

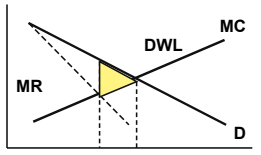
WORKED COST CHECK ***For TC=90+6q+3q²: FC=90, VC=6q+3q² and MC=6+6q. At q=5: MC=36, AVC=105/5=21, ATC=195/5=39 and AFC=18; verify ATC–AVC=18. AVC=6+3q rises, so MC lies above AVC for q>0. Trap: F differentiates to zero; keep the factor 2 on q².***

7 · Monopoly core loop

T6 · HIGH PRIORITY

LINEAR-DEMAND SHORTCUT

Demand P = a - bQ ⇒ MR = a - 2bQ.
1 Solve MR = MC → Qm.
2 Read Pm from **demand**, not MR.
3 Profit = Qm(Pm - ATC) = TR - TC.
4 Efficient Qc from P = MC.
5 DWL = ½(Qc - Qm)[D - MC at Qm].



Monopoly restricts output Qm below efficient Qc; the missing-trades triangle is DWL.

MR < P because selling one more unit requires a price cut on existing units. The profit rectangle is a transfer; the triangle from Qm to Qc is the efficiency loss.

8 · Price discrimination chooser

T6

Requirements: market power · no resale/arbitrage · information about willingness to pay or buyer type.

FORM	RULE	OUTCOME
1st-degree	each unit at WTP; D becomes MR	efficient Q; CS=0; DWL=0
2nd-degree	menu/quantity tiers induce self-selection	types reveal themselves
3rd-degree	MRA = MRB = MC	higher P in more inelastic market
two-part tariff	p = MC; fee F = CS at p=MC	efficient Q; surplus captured

Natural monopoly: falling ATC; P=MC is efficient but loss-making, P=ATC breaks even with some DWL. **Monopolistic competition LR:** D tangent to ATC, so zero profit, but P>MC and output below efficient scale (excess capacity).

9 · Monopoly traps

T6 FAQ

- Use MR = a − 2bQ only for **linear inverse demand**.
- After MR=MC, substitute Qm into D for Pm.
- For DWL, find Qc from P=MC; do not use profit as the loss.

10 · Simultaneous games

T7 · HIGH PRIORITY

Best response = highest payoff given the other player's action. ***Dominant strategy*** = best response whatever the other does. ***Nash equilibrium*** = every player best-responds; no profitable unilateral deviation.

MATRIX ALGORITHM

Row player: mark highest first payoff in each column.
Column player: mark highest second payoff in each row.
Cell with both marks = pure-strategy Nash.

STRUCTURE	FINGERPRINT
Prisoner's dilemma	dominant-strategy Nash is worse for both than cooperation
Coordination	multiple Nash equilibria; players want to match
No pure Nash	no cell contains both best responses

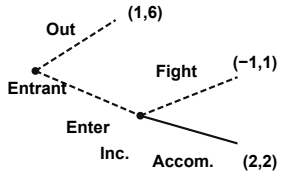
Payoff order: first number = row player; second = column player. Nash describes stability, not joint efficiency.

11 · Sequential games

T8

BACKWARD INDUCTION

Start at the final node → choose the mover's best payoff → prune rejected branch → fold choice back → repeat to the root. Surviving strategies form the SPE.



At the last node, Accommodate pays 2 rather than Fight's 1; Enter then pays 2 rather than 1.

Incredible threat = action the threatener would not choose once its node arrives. Backward induction eliminates it. In the entry tree, SPE = (Enter; Accommodate), payoffs (2,2).

GAME CHECK ***A dominant strategy concerns one player; Nash concerns the outcome. Eliminate a strategy only if another always pays more, then repeat. Nash means no profitable unilateral deviation–not the highest joint payoff.***

13 · Controls, tax & subsidy

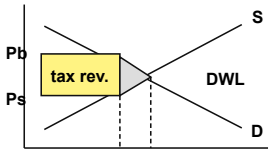
T9 · HIGH PRIORITY

INTERVENTION	BINDING WHEN	RESULT
price ceiling	below P*	Qd > Qs → shortage
price floor	above P*	Qs > Qd → surplus
per-unit tax t	Pb − Ps = t	Q falls; revenue tQt; DWL
per-unit subsidy s	Ps − Pb = s	Q rises above efficient Q; over-production DWL

TAX ALGORITHM

1 No-tax: Pd(Q)=Ps(Q) → Q*,P*.
2 Taxed: Pd(Q)=Ps(Q)+t → Qt.
3 Pb = demand at Qt; Ps = Pb-t.
4 Buyer burden = Pb-P*; seller = P*-Ps.
5 DWL = ½t(Q*-Qt).

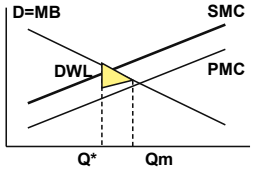
More inelastic side bears more; statutory incidence is irrelevant. For a given tax, more inelastic market → smaller ΔQ → smaller DWL.



The tax wedge separates buyer and seller prices; lost trades from Qt to Q* create DWL.

14 · Externality correction

T9



Negative externality: SMC lies above private MC, so the market over-produces at Qm.

Negative: SMC = PMC + MEC; market D=PMC gives too much Q; efficient D=SMC; Pigouvian tax = MEC **at** Q*.
Positive: SMB = PMB + MEB; market under-produces; efficient SMB=MC; subsidy = MEB at Q*.

15 · GDP, prices & labour

T10–11 · HIGH PRIORITY

NATIONAL ACCOUNTS

GDP = C + I + G + NX; NX = exports - imports.
Nominal GDP = current q × current p.
Real GDP = current q × base-year p.
GDP deflator = 100 × nominal / real.

COUNTS	EXCLUDED
final goods/services newly produced	intermediate goods already in final price
I: business fixed investment, **new** housing, inventory change	shares/financial assets; existing assets
government purchases	transfers: no current production
dealer's value-added margin on resale	second-hand sale itself

LABOUR & PRICES

Labour force = employed + unemployed.
u-rate = unemployed / labour force.
Natural u = frictional + structural.
Cyclical u = actual - natural.
Inflation = %ΔCPI.
Real wage = nominal wage × base CPI/current CPI.

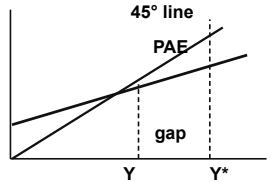
Okun course form: contractionary gap ≈ β × cyclical unemployment. Frictional = between jobs; structural = skills/location mismatch; cyclical = downturn. Discouraged workers and non-participants are outside the labour force.

16 · PAE & stabilisation

T12 · LIKELY MULTI-PART

MODEL

PAE = C + Ip + G (+NX).
C = A + bYd; Yd = Y - T - tY.
Equilibrium: Y = PAE.
Y = (A + Ip + G - bT) / [1 - b(1-t)].
Multiplier k = 1 / [1 - b(1-t)].



When equilibrium Y lies below potential Y*, planned spending is too low.

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Semester 2 formal examination period, from 16 November 2026 (the Exams Office publishes the exact date).

BUSS1040 Economics for Business Decision Making

SELF-TEST DRILLS · JUDGEMENT CARDS · CLASSIC TRAPS · EXAM-MORNING PLAN

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SIDE 2/2 FIVE WORKED DRILLS → JUDGEMENT CARDS → TRAPS → EXAM-MORNING RECALL ANSWER PATH, NOT ANSWER ONLY S2 2026 · formula → substitution → labelled conclusion

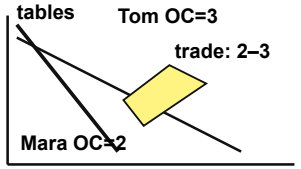
17 · Drill 1: comparative advantage

T1 WORKED · 6 MARKS

Given: Mara: 12 chairs or 24 tables; Tom: 6 chairs or 18 tables. Find absolute/comparative advantage and the trade-price range in tables per chair.

PRODUCER	OC 1 CHAIR	OC 1 TABLE
Mara	24/12 = **2 tables**	12/24 = 1/2 chair
Tom	18/6 = **3 tables**	6/18 = 1/3 chair

Path: (1) Mara produces more of both → absolute advantage in both. (2) Lower OC of chair: Mara, 2<3. (3) Lower OC of table: Tom, 1/3<1/2. (4) Specialise Mara→chairs, Tom→tables. (5) Mutually beneficial price: 2 < tables per chair < 3.



Flatter PPF → lower OC of the x-good; a price strictly between slopes benefits both.

TRAP *Absolute advantage never decides specialisation. Comparative advantage is the lower opportunity cost.*

18 · Equilibrium + elasticity quick check

T4 SOURCE VALUES

```
D: P=60-2Q · S: P=4Q.
60-2Q=4Q ⇒ Q*=10, P*=40.
CS=½(60-40)(10)=100.
dQ/dP=-1/2; ed=(-1/2)(40/10)=-2 ⇒ elastic.
```

Interpretation: a 1% price rise reduces Qd by about 2%; with elastic demand, a price cut raises total revenue.

19 · If you see X → do Y

T1–4

"between two points"	arc/midpoint elasticity
curve + one point	point elasticity
own price changed	movement, not shift
private market curve	horizontal sum q at common P
public good	vertical sum MB at common Q

Answer check: opportunity-cost units belong in every ratio; a mutually beneficial terms-of-trade value must be strictly between the two OCs; an equilibrium answer needs both P* and Q*; a surplus calculation needs a labelled base and height; elasticity interpretation compares |ε| with 1 and names the revenue direction.

20 · Drill 2: competitive firm

T5 WORKED · 7 MARKS

Given: TC = 64 + 4q + 2q²; MC = 4 + 4q; AVC = 4 + 2q; P = $36.

1 OUTPUT

```
P=MC: 36=4+4q ⇒ q=8.
```

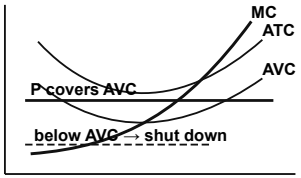
2 SHORT-RUN DECISION

```
AVC(8)=4+2(8)=20. P=36 ≥ AVC=20 ⇒ produce.
```

3 PROFIT

```
TR=36×8=288.
TC=64+4(8)+2(8²)=64+32+128=224.
π=288-224=+$64.
```

Conclusion: produce in the short run; positive economic profit attracts entry, so this is not long-run equilibrium.



Loss can still justify production: short-run shutdown compares price with AVC, not ATC.

SELF-CHECK *At q=8, ATC=224/8=28 and q(P−ATC)=8(36−28)=64 ✓.*

21 · Cost-function mini-drill

T2 WORKED VALUES

For TC=90+6q+3q²: FC=90; MC=6+6q. At q=5: MC=36; VC=105; AVC=21; TC=195; ATC=39; AFC=18. Check ATC−AVC=18=AFC.

CLASSIC ERROR	REPAIR
MC = 6+3q	differentiate q²: factor 2 → 6+6q
FC enters MC	constant differentiates to zero
loss ⇒ shut down	test P against AVC first

BLANK-PAPER RECONSTRUCTION

1. Circle the constant term: it is FC; the remaining terms form VC.
2. Differentiate TC for MC; divide VC and TC by q for AVC and ATC; write AFC=FC/q.
3. At the stated q, compute MC and all averages; verify ATC=AVC+AFC.
4. For a competitive price, solve P=MC on rising MC, then test P against AVC and ATC at that output.
5. Compute profit by both TR−TC and q(P−ATC); disagreement exposes an arithmetic error.

P RELATIVE TO CURVES	SAY ALL OF THIS
P>ATC	produce; positive profit; entry expected

DECISION SENTENCE BANK

22 · Drill 3: monopoly to DWL

T6 WORKED · 9 MARKS

Given: P=120−2Q; TC=60+12Q+Q², so MC=12+2Q.

MR AND OUTPUT

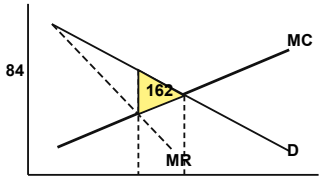
```
MR=120-4Q.
120-4Q=12+2Q ⇒ 108=6Q ⇒ Qm=18.
```

PRICE AND PROFIT

```
Pm=120-2(18)=$84.
TR=84×18=1512.
TC=60+12(18)+18²=600.
π=$912.
```

EFFICIENT OUTPUT AND DWL

```
120-2Q=12+2Q ⇒ Qc=27.
At Qm, MC=48; vertical gap=84-48=36.
DWL=½(27-18)(36)=$162.
```



Source check: Qm=18, Pm=84, Qc=27 and DWL=162.

23 · Monopoly judgement cards

T6 FAQ

IF YOU SEE X	DO Y
P=a−bQ	write MR=a−2bQ
single-price monopoly	MR=MC; price from D
efficient benchmark	P=MC
two-part tariff	p=MC; fee=CS
separable markets	MRA=MRB=MC; inelastic market dearer
perfect discrimination	D=MR; Q efficient; CS=0

TRAP *Profit is not deadweight loss. Profit transfers surplus; output restriction destroys it.*

23b · Discrimination & regulation test

T6

Before naming price discrimination, check all three conditions: market power, ability to prevent resale, and information that distinguishes willingness to pay. Then classify:

QUESTION CUE	CLASSIFICATION / EQUATION
each unit charged its WTP	first degree; D=MR; efficient Q, CS=0
versions, blocks, quantity discounts	second degree; self-selection
student/business or region groups	third degree; MRA=MRB=MC

24 · Drill 4: per-unit tax

T9 WORKED · 8 MARKS

Given: demand P=60−Q; supply P=2Q; tax t=$9 on sellers.

NO-TAX BENCHMARK

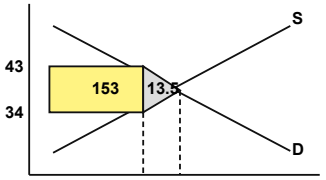
```
60-Q=2Q ⇒ Q*=20; P*=40.
```

TAX WEDGE

```
Pb=Ps+9, so 60-Q=2Q+9 ⇒ 51=3Q ⇒ Qt=17.
Pb=60-17=$43; Ps=43-9=$34.
```

INCIDENCE AND EFFICIENCY

```
Buyer burden=43-40=$3.
Seller burden=40-34=$6.
DWL=½×9×(20-17)=$13.50.
Revenue=9×17=$153.
```



Source check: wedge 9, quantity 17, revenue 153 and DWL 13.50.

Reason: sellers bear more because supply is more inelastic here. Legal placement on sellers does not cause that split.

25 · Intervention traps

T9

ceiling above P*	not binding; no shortage from the control
floor below P*	not binding; no surplus from the control
DWL tax base	Q*−Qt, not Qt
Pigouvian rate	MEC at efficient Q*, not market Qm
public demand	sum heights, not quantities
permit allocation	does not change least-cost target achievement

CHECK *Buyer burden + seller burden must equal t: 3+6=9.*

25b · Market-failure judgement cards

T9

IF THE STORY SAYS…	TRANSLATE TO…
production harms a third party	SMC=PMC+MEC; Qm>Q*; tax MEC at Q*
consumption benefits others	SMB=PMB+MEB; Qm<Q*; subsidy MEB at Q*
everyone consumes same quantity	non-rival; vertically sum MBs
non-payers cannot be excluded	free-rider problem; private under-provision
fixed emissions cap, permits traded	least-cost abatement; low-cost firms sell permits

26 · Drill 5: GDP deflator

T10–11 WORKED · 6 MARKS

Base 2024: 100 bikes@$200; 50 phones@$400. **2025:** 120 bikes@$250; 50 phones@$500.

NOMINAL 2025 — CURRENT Q, CURRENT P

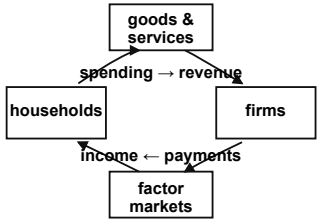
```
120×250 + 50×500 = 30,000+25,000 = $55,000.
```

REAL 2025 — CURRENT Q, BASE P

```
120×200 + 50×400 = 24,000+20,000 = $44,000.
```

DEFLATOR

```
100×55,000/44,000 = 125 ⇒ prices about 25% above the base year.
```



Output = income = expenditure: three views of the same GDP flow.

27 · Macro recall without numbers

T10–12

PROMPT	RECITE
unemployment	U/(E+U); discouraged excluded
cyclical	actual − (frictional+structural)
real wage	nominal × base CPI/current CPI
multiplier	1/[1−b(1−t)]
equilibrium Y	(A + Ip + G − bT)/[1−b(1−t)]
close gap with G	ΔG=gap/k

Source-number check for the PAE setup: A=200, b=.75, T=40, t=.20, Ip=150, G=190 gives k=2.5, Y=1,275; raising Y by 50 requires ΔG=20.

TRAP *Real GDP uses current quantities at base-year prices. "Investment" in GDP is productive capital/new housing/inventories, not shares.*

27b · Macro classifications & policy arrows

T10–12

ITEM	GDP TREATMENT / LABEL
new factory equipment	I: business fixed investment
new home	I: residential construction
unsold output added to stock	I: inventory investment
pension / jobseeker payment	transfer; excluded from G
used good resold by dealer	only dealer margin is current output
import purchased domestically	enters C/I/G, then subtracted in NX

28 · Game-theory self-test

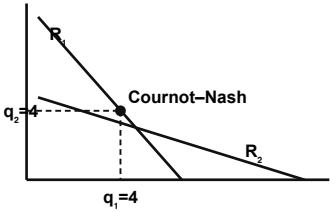
T7–8 WORKED VALUES

Pricing matrix: (H,H)=(6,6); (L,H)=(8,2); (H,L)=(2,8); (L,L)=(4,4).

	FIRM 2: H	FIRM 2: L
FIRM 1: H	6,6	2,**8**
FIRM 1: L	**8**,2	**4,4**

Answer path: Firm 1 prefers L whether Firm 2 picks H (8>6) or L (4>2); symmetry gives Firm 2 the same dominant strategy. Nash=(L,L), payoff (4,4). Yet (H,H)=(6,6) is better for both → prisoner's dilemma.

Sequential entry: at the final node incumbent chooses Accommodate (2>1); entrant anticipates 2 from Enter versus 1 from Stay-out. SPE=(Enter; Accommodate), (2,2). Fight is incredible.



For P=12−Q, MC=0, the source example gives $q_1=q_2=4$ and industry Q=8.

Rank source example: monopoly Q=6 < Cournot Q=8 < perfect competition Q=12.

29 · Method chooser

FAST RECALL

WORDS IN QUESTION	WRITE FIRST
price-taking firm	P=MC; test AVC then ATC
single-price monopolist	MR=a−2bQ; MR=MC
tax on either side	Pb−Ps=t
third-party cost	SMC=PMC+MEC
same-time strategies	mark best responses
ordered moves/threat	backward induction
output gap	k then ΔG=gap/k

30 · Exam-morning plan

COURSE STRATEGY

1. **Recite:** cover Side 1; reproduce MR, tax, GDP and multiplier formulas.
2. **Redraw:** monopoly, tax, externality, game tree and PAE gap.
3. **Run five drills:** formula, substitution, units, conclusion.
4. **Audit:** price from demand; AVC before ATC; tax burden by elasticity; real GDP at base prices.
5. **Reading time:** map each short-answer part to its method.

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