ECC1000 Principles of microeconomics

MONASH UNIVERSITY · UNDERGRADUATE · SEMESTER 2, 2026 · EXAM REVISION SHEET · SIDE 1

Full guide + ask Sia about ECC1000

SIDE 1/2 DEFINITIONS → FORMULAS → DECISION RULES → DIAGRAM VERDICTS EXAM REVISION SHEET Final: readings + pre-workshop material + workshops for every week

0 · Exam map COURSE.JSON · BRIEF

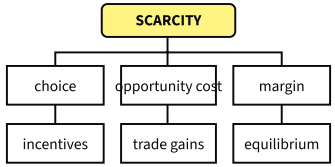
Exercise | Quiz / Test 30% | Examination 50%

Permitted materials: not confirmed for this offering in the course materials we hold — check the exam instructions on the LMS.

COMPONENT	WHAT THE DATA SAYS
Exercise	20%; pre-workshop + workshop work
Quiz / Test	30%; quizzes + supervised in-class tests
Examination	50%; on campus, invigilated, electronic assessment platform

The final covers the readings, pre-workshop material and workshops for every week. Revision therefore has to connect each diagram to its assumptions, calculation and verdict—not memorise labels alone.

1 · Six licences CH 1 · TOPIC MAP



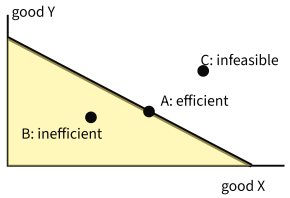
Which principle licenses the claim?

Scarcity is the root; each branch licenses a different conclusion.

IDEA	SENTENCE IT EARNS
Scarcity	Using a resource rules out another use.
Opportunity cost	Count the next-best alternative forgone.
Margin	Choose one additional unit at a time.
Incentives	Changed rewards change behaviour.
Trade	Specialise by comparative advantage.
Equilibrium	No one gains by moving alone.

CHECK *A model is not a photograph. Name the assumption switched on, then state the conclusion that assumption earns.*

2 · PPF verdicts CH 1 · FRONTIERS



On = efficient; inside = inefficient; outside = infeasible today.

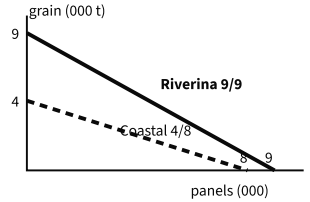
STRAIGHT FRONTIER

```
|slope| = opportunity cost of horizontal good in units of vertical good
```

3 · Trade method CH 1 · COMPARATIVE ADVANTAGE

FOR EACH PRODUCER

```
OC of X = max Y / max X
OC of Y = max X / max Y
```



Higher total output does not settle comparative advantage; the slopes do.

1. Compare maxima → ***absolute*** advantage.
2. Write all four opportunity costs with units.
3. Lower cost → ***comparative*** advantage → specialise.
4. Terms of trade for the sold good must lie between the two opportunity costs.

QUESTION	CORRECT TEST
Who can make more?	Absolute advantage: output.
Who should specialise?	Comparative advantage: opportunity cost.
Will both trade?	Rate strictly between both costs.

TRAP *In a two-good setting costs are reciprocals: one producer cannot have comparative advantage in both goods unless costs are identical, in which case neither gains.*

4 · Costs & profit CH 2 · COST METHOD

AMOUNT	MEANING	INCLUDE?
Explicit	Money outlay: rent, wages, materials	Yes
Implicit	Value of owned time/assets in next-best use	Yes
Sunk	Already incurred, unrecoverable	No
Paid either way	Same under all live options	No

money out? explicit | **forgone?** implicit | **sum both** economic cost

revenue − economic cost compare with best alternative

Either-or questions compare full opportunity cost, not bank movements.

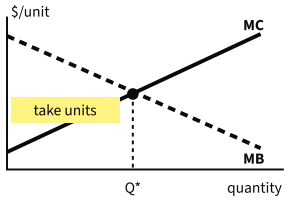
PROFIT	RULE
Accounting	Revenue − explicit costs.
Economic	Revenue − explicit − implicit costs.
3+ options	Compare a pair; discard the negative-economic-profit option; test the survivor against the next.

5 · How much? CH 2 · MARGINAL RULE

Marginal benefit is what the next unit adds to total benefit; ***marginal cost*** is what it adds to total opportunity cost, including implicit cost.

WHOLE-UNIT STOPPING RULE

```
Take each unit while MB ≥ MC.
Choose the last integer unit that still pays.
Reject the next unit when MB < MC.
```



Left of Q*: the next unit adds value. Right: it destroys value.

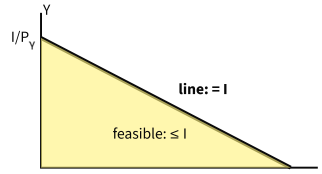
WORDING	METHOD
Choose one option	Economic profit; eliminate pairwise.
Choose quantity/hours/units	Compare MB and MC unit by unit.
"Already spent …"	Exclude if unrecoverable.

CHECK *Do not stop at the visual crossing if quantities are indivisible. Test the last accepted unit and the first rejected unit.*

6 · Budget mechanics CH 3 · AFFORDABILITY

TWO GOODS X AND Y

```
Budget constraint: PₓX + P_YY ≤ I
Budget line: PₓX + P_YY = I
X-intercept = I/Pₓ · Y-intercept = I/P_Y
|slope| = Pₓ/P_Y (Y per X)
```



The region is affordable; the boundary spends the whole income.

SHOCK	DIAGRAM	HELD FIXED
Income changes	Parallel shift; both intercepts move proportionally	Price ratio / slope
Price of X changes	Pivot at Y-intercept	I and P_Y
Price of Y changes	Pivot at X-intercept	I and P_x

7 · Utility optimum CH 3 · OPTIMAL BUNDLE

Utility ranks bundles; one util has no standalone meaning and does not compare wellbeing across people. ***Marginal utility*** is the change in total utility from one more unit, normally diminishing as consumption rises.

OPTIMAL AFFORDABLE BUNDLE

```
MUₓ/Pₓ = MU_Y/P_Y
If MUₓ/Pₓ > MU_Y/P_Y → spend more on X, less on Y.
Whole units: no single affordable swap raises total utility.
```

MU_x/P_x return/$ on X **compare** **MU_Y/P_Y** return/$ on Y

spend toward higher ratio

stop: equal / no better swap

Compare satisfaction per dollar, never raw marginal utility.

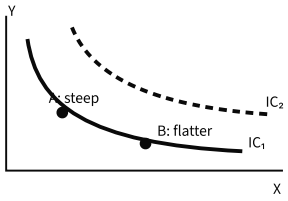
OBJECT	DEFINITION / USE
Bundle	Collection of goods consumed.
Utility function	Total utility for each possible bundle.
Marginal utility	Change from one additional unit.
Feasible set	Every bundle satisfying expenditure ≤ income.

8 · Two exchange rates CH 4 · MRT/MRS

PUT BOTH IN THE SAME UNITS

```
MRT = price ratio = Pₓ/P_Y
MRS = marginal-utility ratio = MUₓ/MU_Y
Interior optimum: MRS = MRT
⇔ MUₓ/Pₓ = MU_Y/P_Y
```

If X is horizontal and Y vertical, both rates say "units of Y surrendered for one more X". Write that sentence before inserting numbers; reversing one ratio reverses the decision.



Higher curves are preferred; MRS diminishes as X replaces Y.

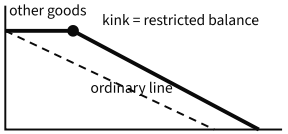
READ FROM CURVE	EXAM SENTENCE
Same curve	Bundles deliver equal total utility.
Higher curve	Preferred under monotonicity; not a measurable utility gap.

GOOD AFTER P_x RISES	SUBSTITUTION	INCOME	TOTAL
Normal X	−	−	−

9 · Preference logic CH 4 · PROPERTIES

PROPERTY	WHAT IT BUYS THE DIAGRAM
Complete	Every pair of bundles can be ranked.
Transitive	Consistent ranking; curves cannot cross.
Continuous	Curves are unbroken.
Monotonic	More preferred; curves slope down; higher is better.
Convex	Mixtures beat extremes; diminishing MRS; tangency is a maximum.

Without convexity, the best affordable bundle may be a corner; a tangency need not be the maximum.

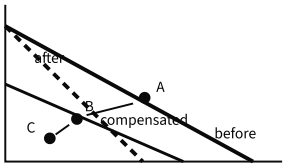


A restriction bends the boundary; it does not change total payment.

KINKED-CONSTRAINT TEST

1. Unrestricted portion caps spending on other goods.
2. Constraint is flat until the restricted balance is used, then takes the ordinary slope.
3. Eligible-goods intercept is unchanged.
4. Restriction binds only someone who otherwise chose less than the restricted amount of eligible goods.

10 · Price decomposition CH 5 · FIXED ORDER



A→B substitution · B→C income

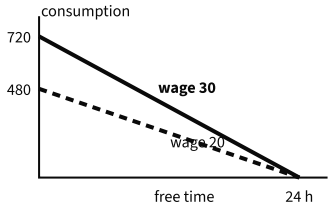
New line → compensated parallel → intermediate bundle → final bundle.

AFTER A PRICE RISE IN X

```
Substitution effect: away from dearer X; direction guaranteed.
Income effect: real purchasing power falls. Normal X → less X; inferior X → more X.
Total: sign only after classifying X and comparing magnitudes.
```

11 · Work–leisure CH 5 · TIME BUDGET

Time endowment is fixed; work converts time into wages and wages into consumption. Free time is a good whose opportunity cost is the wage, so the wage is the slope/MRT.



A wage rise pivots about 24 hours; a day is still a day.

WAGE RISE	DIRECTION
Substitution effect	Free time dearer → less free time → more work.
Income effect, free time normal	Higher purchasing power → more free time → less work.
Net hours	Ambiguous without relative magnitudes.

TRAP *"Higher wage means more hours" overstates the model. Name both effects and which must dominate for the stated result.*

12 · Games: solve, then judge CH 6 · TWO-PASS SCAN

Game = players + strategies + order + information + payoffs. Simultaneous play means neither observes the other's choice; full information means both know all options and payoffs.

PASS 1 columns fixed | **PASS 2** rows fixed | **OVERLAP** Nash cell(s)

write (row action, column action)

no unilateral profitable deviation

Best responses are conditional; scan each player independently.

TEST	QUESTION
Best response	Highest own payoff against one fixed rival action?
Dominance	Same best action whatever rival does?
Nash	Both best-responding in one cell?
Pareto efficiency	Can any other cell improve someone without harming anyone?

Stability ≠ desirability. A prisoner's-dilemma equilibrium can be Pareto dominated. Coordination can yield two equilibria and no prediction between them. Public-goods free riding is the dilemma with symmetric players: contributing costs privately while benefits are shared.

Policy changes behaviour only by changing payoffs: add a private cost to withholding, a reward for contributing, or an individual component. If the grid is unchanged, the best responses and equilibrium are unchanged.

ECC1000 Self-test drills · answer path before answer

WORKED NUMBERS · JUDGEMENT CARDS · CLASSIC TRAPS · EXAM-MORNING PLAN · SIDE 2

Full guide + ask Sia about ECC1000

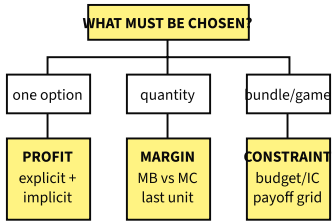
SIDE 2/2 FIVE WORKED DRILLS · IF YOU SEE X → DO Y · TRAPS · RAPID RECALL

SELF-TEST BEFORE READING

Answer pattern: classify → formula/diagram → numbers → verdict sentence

13 · Method chooser

CH 1–6 · TOPIC MAPS



trade: 4 OCs → specialise → terms

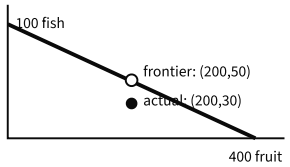
Classify the decision before calculating; fluent use of the wrong method earns the wrong answer.

IF YOU SEE …	DO …
Two maxima / two producers	Four OCs → comparative advantage → trade interval.
Owned time, premises, equipment	Price the forgone use as implicit cost.
One more unit/hour	Compare MB and MC.
Income/prices + two goods	Write the budget equation and intercepts.
MU and prices	Compute MU/P for each good.
Payoff grid	Two best-response passes; then efficiency.

14 · Drill 1: PPF

CH 1 · WORKED EXAMPLE

Q. Island: maximum 400 t fruit or 100 t fish; straight frontier. Current output: 200 t fruit and 30 t fish. Classify and find OC of 1 t fish.



At 200 fruit the frontier permits 50 fish; actual fish is 20 below it.

ANSWER PATH

Half of 400 fruit used → frontier fish = 50.
30 < 50 → inside; inefficient.
100 fish ↔ 400 fruit → OC(1 fish) = 4 fruit.

Verdict: 20 more tonnes of fish are available with no fruit loss at the current point. On the frontier, each extra tonne of fish costs 4 tonnes of fruit.

14A · PPF/trade recall

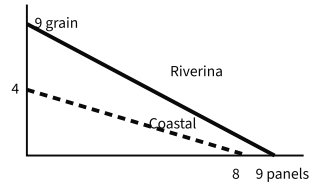
CH 1 · FAST CHECK

PROMPT	RECITE BEFORE MOVING ON
Point inside?	Inefficient: more of at least one good is possible without sacrifice.

15 · Drill 2: trade

COURSE WORKED EXAMPLE

Q. Riverina: 9,000 t grain or 9,000 panels. Coastal: 4,000 t grain or 8,000 panels. Find both advantages and the mutually beneficial price of one panel.



Same axes make absolute output and relative slopes visible together.

PRODUCER	OC 1 PANEL	OC 1 T GRAIN
Riverina	1 t grain	1 panel
Coastal	0.5 t grain	2 panels

ANSWER

Absolute: Riverina in both outputs.
Comparative: Coastal in panels; Riverina in grain.
0.5 < price of 1 panel < 1 tonne of grain

Coastal will not accept less than 0.5 t grain per panel; Riverina will not pay more than 1 t. Write both refusal bounds, not a single arbitrary rate.

16 · Drill 3: economic profit

CH 2 · WORKED EXAMPLE

Q. Revenue $145,000; salary forgone $78,000. A rents for $34,000, buys supplies $26,000, hires staff $46,000. B owns the premises (rent forgone $34,000) and family labour forgoes $46,000.

	VERSION A	VERSION B
Explicit	34 + 26 + 46 = 106k	26k
Implicit	78k	78 + 34 + 46 = 158k
Opportunity cost	184k	184k
Accounting profit	145 − 106 = 39k	145 − 26 = 119k
Economic profit	145 − 184 = −39k	

CHANGE IN STORY	ACCOUNTING TREATMENT	ECONOMIC TREATMENT
Rent becomes owned premises	Explicit cost falls 34k	Implicit rent rises 34k
Paid staff becomes unpaid family labour	Explicit cost falls 46k	Implicit wage rises 46k
Result	Accounting profit rises 80k	Opportunity cost and economic profit unchanged

17 · Drill 4: MU per $

CH 3 · WORKED EXAMPLE

Q. Income $48. Tea costs $3, meal $8. At the current bundle, next tea gives 12 utils and next meal 40 utils. Is this optimal?

GOOD	MU	PRICE	MU/$	MOVE
Tea	12	$3	4	Buy less
Meal	40	$8	5	Buy more

ANSWER PATH

Tea: 12/3 = 4 utils per dollar.
Meal: 40/8 = 5 utils per dollar.
5 > 4 → not optimal; shift spending tea → meals.
Net gain per dollar moved = 5 - 4 = 1 util.

As meals increase, their MU falls; as tea decreases, its MU rises. Ratios converge. With whole units, the finish is the bundle from which no single affordable swap improves total utility.

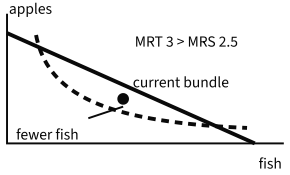
18 · Same drill, slope form

CH 4 · WORKED EXAMPLE

Q. Fish cost $3, apples $1. At the current bundle MU fish = 15, MU apples = 6. Optimising?

USE APPLES PER FISH THROUGHOUT

MRT = Pfish/Papple = 3/1 = 3 apples/fish.
MRS = MUfish/MUapple = 15/6 = 2.5 apples/fish.
Market demands 3; consumer offers 2.5 → fish are too dear.
Buy fewer fish and more apples.



Same units first. A reciprocal in only one rate produces the opposite verdict.

TRAP *"A meal/fish gives more utility" is insufficient. Price it. "Steeper IC means X is always valued more" is also too broad: MRS is local to the bundle.*

19 · Budget-line speed check

CH 3 · MODEL 3.1

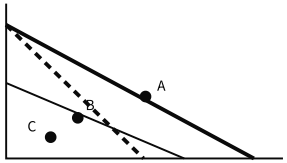
Income $60; lunch remains $12; coffee rises $4 → $6.

	BEFORE	AFTER
Coffee intercept	60/4 = 15	60/6 = 10
Lunch intercept	60/12 = 5	60/12 = 5
Verdict	Pivot inward about the unchanged lunch intercept.	

20 · Price-change card

CH 5 · WORKED EXAMPLE

Q. A budget staple's price rises; for this household it is inferior. Sign each effect and the total.



A→B: relative price · B→C: purchasing power

Construct the intermediate point; neither component is observed separately.

STEP	STAPLE PURCHASES	WHY
Line	Own intercept inward	Only its price rose.
Substitution	Decrease	Relatively dearer; utility fixed.
Income	Increase	Real purchasing power fell; inferior good.
Total	Ambiguous	Effects oppose; larger magnitude wins.

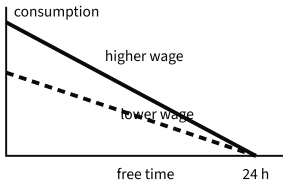
FOUR-MARK ANSWER SPINE

pivot + fixed intercept → substitution direction → income direction with good type → total conditional on magnitudes

CLASSIC ERROR *Never write "income fell". Money income is unchanged; its command over bundles fell.*

21 · Wage-rise judgement

CH 5 · WORK–LEISURE



Only the consumption intercept rises; the free-time intercept stays at the time endowment.

IF QUESTION ASKS …	WRITE …
Why pivot?	Wage changes the price of free time; 24 hours fixed.
Substitution effect?	Less free time, more work.
Income effect?	If free time normal: more free time, less work.
Net hours?	Cannot sign without dominance of one effect.

23 · Drill 5: cafe game

CH 6 · WORKED EXAMPLE

Q. Two cafes choose Open early or Stay closed. Open alone pays 8; both open pay 3 each; both closed pay 5 each; closed against an open rival pays 1.

ROW CAFE \ COLUMN CAFE	Open	Closed
Open	3, 3 ★	8, 1
Closed	1, 8	5, 5

★ both best responses: Nash

Payoffs are (row, column). Scan row choices down columns, then column choices across rows.

ANSWER PATH

Against Open: Open pays 3 > 1.
Against Closed: Open pays 8 > 5.
Open is dominant for both → unique Nash = (Open, Open), payoff (3,3).
(Closed, Closed) pays (5,5) → Nash is not Pareto efficient.

Neither cafe can reach (5,5) alone: unilateral closing against Open gives 1. This is the prisoner's-dilemma structure.

24 · Grid judgement cards

CH 6 · FAQ

ROW PLAYER hold columns | **COLUMN** hold rows | **OVERLAP** Nash

test dominance + Pareto separately
do not infer welfare from equilibrium

Mechanical scan first; story, labels and policy interpretation second.

IF YOU SEE …	CONCLUDE …
One action best in every rival case	Dominant; eliminate dominated action.
Two mutual best-response cells	Two Nash equilibria; model alone does not choose.
Another cell better for both than Nash	Nash is Pareto dominated.
Contribute costs privately; benefit shared	Check free-riding / public-good dilemma.
Sequential rather than simultaneous	Order of play changes the treatment; do not use simultaneous-choice wording.

25 · Fast definitions

GLOSSARY

Best response: own highest-payoff action against one fixed rival action. ***Nash:*** no profitable unilateral deviation. ***Pareto efficient:*** no improvement for one without harm to another. ***Dominant:*** preferred whatever the rival does. ***Symmetric:*** all players face identical strategies and payoffs.

26 · Classic traps

FAQ + WORKED TIPS

TRAP	ONE-LINE CORRECTION
Use output to assign specialisation	Output gives absolute advantage; OC gives comparative.
Count a cost paid either way	Only differences between alternatives enter OC.
Ignore owned resources	Use their next-best earnings as implicit cost.
Continue because much was spent	Unrecoverable past cost is sunk; compare remaining MB and MC.
Compare raw MUs	Divide each MU by its price.
Call an interior bundle optimal	With monotonicity, unspent income can buy more.
Invert one exchange rate	Write common units, e.g. apples per fish.
Say money income fell after a price rise	Real purchasing power fell; money income did not.
Sign inferior-good total automatically	Substitution and income effects oppose; compare magnitudes.
Equilibrium = good outcome	Nash is stability; Pareto is a separate welfare test.

ANSWER AUDIT	QUESTION TO ASK
1 · Classify	What kind of point, choice or game is this?
2 · Hold fixed	Income, price, utility or rival action?
3 · Show units	Grain/panel, apples/fish, utils/$?
4 · Verdict	Direction, model conclusion and any condition?

28 · Exam-morning plan

BRIEF · STUDY STRATEGY

ORDER	RETRIEVAL TASK
Draw	PPF, budget line, indifference map, payoff grid.
Recite	Eight rules: costs, margin, slopes, optimum, effects, best responses.
Solve	Two drills without looking; correct the first wrong step.
Check	LMS instructions and personal timetable.
Trade	Four OCs → lower cost specialises → terms strictly between costs.
Consumer	Intercepts first; common units; MU/$ equality or MRS = MRT.
Price	New line → compensated line → substitution → income → total only if magnitudes permit.
Game	Two response passes; write (row, column); test dominance and Pareto separately.

1. Redraw PPF, budget line, indifference map and 2×2 payoff grid from assumptions.
2. Recite both exchange rates, MU/$ equality, profit equations, marginal rule and best-response scan.
3. Do the trade drill and one consumer/game drill without looking; mark the first wrong step.
4. Check the LMS exam instructions and personal timetable.

FINAL SENTENCE *Name what was held constant, state the direction, attach units, and give the model's verdict—plus any condition that keeps the sign ambiguous.*