FINC5001

Foundation in Finance

THE UNIVERSITY OF SYDNEY · POSTGRADUATE · SEMESTER 2, 2026

CLOSED-BOOK MEMORY SHEET · FORMULA SHEET PROVIDED · Side 1 of 2

Full guide + ask Sia about FINC5001

SIDE 1/2 | DECIDE → ALIGN TIME + RATE + RISK → CALCULATE → INTERPRET → STRESS | MEMORY SHEET · REVISION ONLY | what the provided formula sheet does not decide

0 · Exam Map

COURSE.JSON · BRIEF

5 | 10 | Major assignment 40% | Final exam 45%

QUIZZES	WORKSHOP QUIZZES	MAJOR ASSIGNMENT	FINAL EXAM
5%	10%	40%	**45%**

"The exam will be an in-person, closed-book assessment." *FINC5001 current Canvas Assessments Information page.*

Final: supervised two-hour final examination. Closed book with a formula sheet provided by the University: **nothing of your own comes in**. This is for retrieval practice.

WHAT THE EXAM SHEET GIVES YOU

A formula sheet provided by the University. Do not reproduce or predict it here. Your job is to remember the choice, timing, assumptions, interpretation and boundary around each method.

Financial decision | **Cash flow** | **Opportunity cost** | **Qualified decision**

Source-derived C1 map: separate object, cash flow and forgone alternative before concluding.

1 · Decision Ledger

C1 · C6

MOVE	WRITE	CONTROL
1 Classify	whose decision?	investment / financing / payout
2 Date	valuation date + timeline	cash flow and exponent agree
3 Rate	period + risk match	nominal ≠ effective
4 Value	visible substitution	sign, unit, denominator
5 Judge	economic meaning	one reversal condition

ONE-PERIOD NPV

$NPV = -C_0 + C_1/(1+r)$

Boundary: an accounting entry or financing flow is not automatically an incremental project cash flow. Identify what changes because the decision is taken.

THREE DECISIONS, ONE VALUE TEST

DECISION	QUESTION TO ANSWER	CASH-FLOW CONTROL
investment	which assets or projects should the firm take?	incremental project flows and opportunity cost
financing	how should the firm fund its choices?	keep financing consistent with the valuation rate
payout	what should be distributed?	identify whose distributions and when

Opportunity cost is the value of the best forgone **comparable** alternative. Comparison requires a common date and a benchmark with relevant risk; a larger undated number is not enough.

2 · Rate Before Value

C2 · FINANCIAL MATHEMATICS I

Compound rate fixes the quoted rate and compounding frequency; ***effective annual rate*** puts the economic growth on a one-year basis; *present value* brings a future cash flow to a stated date.

EFFECTIVE ANNUAL RATE

$EAR = (1 + j/m)^m - 1$

j = nominal annual rate · m = compounds/year

GIVEN	FIRST MOVE	DO NOT DO
nominal j, m	periodic rate j/m	call j the effective rate
two rate quotes	convert to same period	compare labels only
future cash flow	mark valuation date	discount with unmatched periods
changed m	recompute EAR	hold EAR fixed

Boundary: a nominal rate cannot be compared with an effective rate until compounding frequency and period are aligned.

Compound rate quote j and m | **Effective annual** rate | **Present value** stated date | **Valuation result** interpret

Source-derived C2 figure: quote, effective rate and present value perform separate jobs before interpretation.

2b · Interpretation Checks

C2 FAQ + BOUNDARY

OUTPUT	MEANING	STRESS
EAR	one-year economic growth	change compounding frequency
PV	value at stated date	change rate or date
future value	value at later date	check period count

Equal nominal percentages can have different costs because the number of compounding intervals changes the amount accumulated or discounted. State the **direction** and the **basis of comparison**, not merely the computed percentage.

Audit four things together: `rate per period · number of periods · cash-flow date · valuation date`. If one uses a different unit, the answer is not ready.

SINGLE-CASH-FLOW RESPONSE

1. Name the future cash flow and its date.
2. Translate the quoted rate into the cash flow's period.
3. Move value to the requested date and label that date.
4. Explain whether the output is a quoted rate, effective growth rate or present value.

3 · Cash-Flow Classifier

C3 · FINANCIAL MATHEMATICS II

PATTERN	FIRST PAYMENT	HORIZON / CONTROL
ordinary annuity	end of first period	finite n
annuity due	today / period start	finite n; earlier cash flows
growing annuity	dated explicitly	finite; growth + rate
perpetuity	check first date	continues indefinitely
uneven	each date shown	discount separately

ORDINARY ANNUITY PRESENT VALUE

$PV = PMT[1 - (1+i)^{-n}]/i$

Classification before formula. First payment date and horizon control the choice. An ordinary annuity, annuity due, growing annuity and perpetuity are not interchangeable.



ordinary: first cash flow one period after t=0

C3 timing control: ordinary-annuity payments sit at period ends, not at time zero.

3b · Method Steps

C3 TOPIC MAP + FAQ

1. Draw time zero and every payment date.
2. Mark equal versus uneven payments; finite versus indefinite horizon; constant versus growing stream.
3. Choose the expression matching the **first payment date**.
4. Use a rate with the same period as the payments.
5. State the date of the resulting value.

IF THE CASE CHANGES…	FIRST AFFECTED MOVE
first payment moves to today	reclassify as annuity due
payments become uneven	discount each cash flow
finite stream becomes indefinite	recheck perpetuity assumptions
payment interval changes	realign rate period

Annuity = finite equal payments at regular intervals. ***Perpetuity*** continues indefinitely under its assumptions. Growth, timing and the discount-rate relation still require checking.

VALUE-DATE AUDIT

WORKING SHOWN	WHAT THE MARKER CAN VERIFY
timeline with t=0	first payment and horizon
rate beside each interval	period alignment

4 · Bond Valuation

C4 · DEBT AND EQUITY VALUATION

Bond cash flows are coupons plus principal; ***yield to maturity*** is the discount rate that equates promised cash flows with price under stated assumptions; *duration effect* controls sensitivity.

BOND PRICE

$P_0 = \sum_{t=1}^{n} C/(1+y)^t + F/(1+y)^n$

INPUT	PLACE ON TIMELINE	CHECK
coupon C	each coupon date	rate period matches coupon period
face value F	maturity date	do not omit final coupon
yield y	discount each promised flow	required yield, not coupon rate
maturity n	final exponent	count remaining periods

Price–yield direction: with fixed promised cash flows, a higher required yield lowers present value; a lower yield raises it.

Bond cash flows coupons + principal | **Yield to maturity** discount rate | **Duration effect** sensitivity | **Bond value** qualified result

Source-derived C4 figure: cash flows, yield and duration perform separate jobs before value is interpreted.

4b · Interpret, Then Qualify

C4 FAQ + BOUNDARY

OBSERVATION	SAFE CONCLUSION	QUALIFICATION
coupon rate > yield	price above face value in the worked case	cash flows and timing fixed
yield rises	price falls	sensitivity also depends on maturity, coupons, options
computed YTM	internal rate under assumptions	not guaranteed realised return

Boundary: yield to maturity is an internal rate under reinvestment and holding assumptions; it is not a guaranteed realised return.

List every coupon and the principal before using a shortcut. The final-period cash flow combines the last coupon and face value. State whether the price is above or below face value and connect that direction to coupon rate versus required yield.

FOUR-PART BOND EXPLANATION

1. Write promised coupons and face value separately.
2. Convert the yield to the coupon period when required by the case.

5 · Equity Valuation

C5 · DEBT AND EQUITY VALUATION

Dividend stream supplies expected distributions; ***required return*** discounts them; ***growth assumption*** is the control that can make a mechanical result indefensible.

GORDON GROWTH VALUE

$P_0 = D_1/(r-g)$ with $r > g$

QUESTION	USE / CHECK
constant growth indefinitely?	Gordon model only with defensible long-run growth
short-run growth differs?	two-stage logic; make the transition visible
which dividend?	D_1, the expected next dividend
unusual payout policy?	model and horizon must match economics
small r−g spread?	flag high sensitivity

Boundary: required return must exceed growth. Short-run growth cannot be extended forever by convenience.

Dividend stream | **Required** return | **Growth** assumption → **Equity value**

Source-derived C5 map: distributions, discount rate and sustainable growth jointly determine value.

5b · Sensitivity Language

C5 WORKED + FAQ

CHANGE	MECHANICAL EFFECT	INTERPRETATION
D_1 rises	P_0 rises, other inputs fixed	higher expected distribution
r rises	denominator widens; P_0 falls	higher required return
g rises	denominator narrows; P_0 rises	test sustainability
r approaches g	value becomes very sensitive	scrutinise assumptions

Finish in this order: **value → dividend date → r>g check → long-run credibility → sensitivity**. A positive denominator is necessary, but it does not make the growth forecast credible.

For firms with unusual payout policies or unstable growth, the source requires a model and horizon consistent with their economics. Do not force constant growth merely because it is compact.

TWO-STAGE REASONING

6 · Capital Budgeting

C6 · RISK + POLICY

Risk-adjusted rate must be comparable to project risk; ***incremental cash flow*** captures only the change caused by the project; ***capital structure*** controls financing consistency.

NET PRESENT VALUE

$NPV = -C_0 + \sum_{t=1}^{n} CF_t/(1+r)^t$

BUILD	QUESTION	FAILURE MODE
cash flows	does this change if project proceeds?	accounting or financing flow treated as incremental
rate	does r match project risk?	unrelated required return
financing	is it embedded in valuation?	same financing cost counted twice
decision	does NPV support acceptance?	number stated without conditions
sensitivity	what could reverse sign?	varying immaterial inputs

Incremental CF | **Risk rate** | **Finance fit?** → **NPV decision**

then test a sign-reversing input

Source-derived C6 map: cash flows, risk and financing assumptions condition the recommendation.

6b · Decision Boundary

C6 TOPIC MAP + FAQ

A positive model value is conditional. State the cash-flow, risk, tax and financing assumptions. Sensitivity should target variables capable of reversing the decision.

Financing policy enters through a risk-appropriate cost of capital and a valuation approach that treats financing consistently. Do not subtract financing cash flows and also embed the same cost in the discount rate.

ANSWER LAYER	SENTENCE STEM
classification	"This is a ___ cash-flow pattern / decision."
working	"At date 0, discount ___ at ___ because ___."
interpretation	"The result supports ___ for ___."
boundary	"This reverses if ___ changes enough to ___."

Before finishing, compare prose, equations, table and diagram: **direction, denominator, date, sign and unit must agree**.

Net present value is discounted incremental project cash flow less the initial investment. ***Cost of capital*** is the required return appropriate to the risk and financing assumptions of the valued cash flows. These definitions must agree with the entries actually used.

Your exam is closed book with a formula sheet provided: nothing of your own goes in. Use this to revise, not to carry.

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

FINC5001

Foundation in Finance · Retrieval Drills

THE UNIVERSITY OF SYDNEY · POSTGRADUATE · SEMESTER 2, 2026

CLOSED-BOOK MEMORY SHEET · FORMULA SHEET PROVIDED · Side 2 of 2

Full guide + ask Sia about FINC5001

SIDE 2/2 COVER → SOLVE → EXPLAIN → CHANGE ONE FACT → REPAIR THE FIRST AFFECTED STEP

SELF-TEST DRILLS

worked values are from the FINC5001 guide

7 · Drill 1 · Opportunity Cost

C1 WORKED 1.1

Prompt. Spend 50,000 now on a project returning 58,000 in one year, or place the funds elsewhere at 10%. Compare at the correct date.

Financial decision	**Cash flow**
Opportunity cost	**Finance decision**

Source-derived C1 figure: separate the decision, cash flow and forgone alternative before comparing dates.

ALTERNATIVE AT YEAR 1

`50,000(1.10) = 55,000`

ADVANTAGE AT SAME DATE

`58,000 - 55,000 = 3,000`

Conclusion. The project provides a 3,000 advantage at that comparison date before other risk and cash-flow adjustments. The decision is for the firm; the benchmark is the best forgone comparable alternative.

TRANSFER

Raise the alternative return to 18%: the alternative becomes **59,000**, so the project no longer dominates on the stated one-year cash flows.

COMMON SLIP	REPAIR
50,000 vs 58,000	move both alternatives to year 1
ignore risk	qualify before recommending
call financing incremental	ask what changes because of project

COVER TEST → *Can you state actor, comparison date, benchmark and qualifying risk without looking?*

8 · Drill 2 · Effective Rate

C2 WORKED 2.1

Prompt. Nominal 12% per year, compounded monthly. Compute EAR.

`periodic rate = 0.12/12 = 0.01`

`EAR = (1.01)¹² - 1 ≈ 0.126825`

`EAR ≈ 12.6825%`

8b · Rate Transfer + Diagnostics

C2 CHANGED CASE

Compound rate 12% nominal	**Changed condition** monthly → quarterly
Present value recheck use	**Qualified result** EAR falls

Source-derived C2 changed-condition figure: fewer compounding intervals lower EAR at the same nominal quote.

9 · Drill 3 · Ordinary Annuity

C3 WORKED 3.1

Prompt. Three-year ordinary annuity; 500 at each year-end; 5% per year. Compute PV.

Annuity case 500 × 3 at 5%	**Annuity timing** first at year-end
Perpetuity? no: finite n=3	**Cash-flow value** PV at t=0

Source-derived C3 case route: timing and finite horizon control the cash-flow value.

`PV = 500/1.05 + 500/1.05² + 500/1.05³`

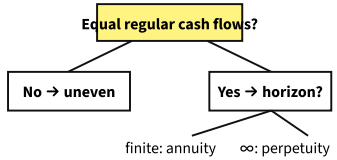
`PV ≈ 1,361.62`

State the valuation date and timing classification before the answer. The ordinary-annuity factor and the term-by-term discounting must agree.

9b · Annuity Transfer Cards

C3 CHANGED CASE + BOUNDARY

CHANGED FACT	RECLASSIFY / RECALCULATE	DIRECTION
first 500 moves to today	annuity due: add 500 now; discount remaining two	PV higher
payments no longer equal	uneven stream; discount each separately	depends on changed amounts
stream continues indefinitely	perpetuity logic; check assumptions	finite annuity formula no longer fits
growth introduced	growing stream; show first payment and horizon	depends on growth–rate relation



New chooser: pattern and horizon precede the valuation expression.

Explain the changed case. Moving the first payment to today changes the timing classification. Preserve the amount, rate and remaining dates; repair only the first affected step. Earlier cash flows carry less discounting, so present value rises.

Retrieval sequence: say "finite or indefinite", "equal or uneven", "first payment date", "growth or no growth", then "rate per payment period". Only after all five are visible should you write the valuation relationship. This sequence distinguishes an ordinary annuity, annuity due, growing annuity, perpetuity and uneven stream without guessing from keywords.

10 · Drill 4 · Bond Price

C4 WORKED 4.1

Prompt. Two-year annual-coupon bond; face 1,000; coupon rate 6%; yield 5%.

Bond case 2 years · face 1,000	**Bond cash flows** 60; then 1,060
Yield to maturity 5% discount rate	**Bond value** price at t=0

Source-derived C4 case route: cash flows and yield lead to the time-zero bond value.

`P₀ = 60/1.05 + 1,060/1.05²`

`P₀ ≈ 1,018.59`

Price is above face value because the coupon rate exceeds the required yield.

10b · Bond Judgement Cards

C4 CHANGED CASE + FAQ

CARD	PROMPT YOURSELF	ANSWER CONTROL
cash flows	coupon each date? principal at maturity?	last cash flow includes both
rate	yield period matches coupons?	do not discount at coupon rate
direction	what if yield rises?	fixed-flow price falls
premium	coupon rate versus yield?	worked price above face at 6% vs 5%
meaning	is YTM realised?	only an internal rate under assumptions

Bond cash flows promised, fixed	**Changed condition** yield 5% → 7%
Duration effect price sensitivity	**Qualified result** below face value

Source-derived C4 changed-condition figure: raising yield to 7% puts price below face value.

Changed case. Raise the yield to 7%. Discounting at 7% gives a price below face value. The price response is inverse because the promised cash flows are fixed while required return rises.

Do not overclaim. Maturity, coupon structure and embedded options affect sensitivity. "Rates up, prices down" is the starting direction, not a complete sensitivity analysis.

BOND BLANK-PAGE DRILL

Without notes, draw t=0, year 1 and year 2; place 60 at year 1 and 1,060 at year 2; write 5% beside both discount intervals; reconstruct 1,018.59; then change only the yield to 7% and predict the direction before calculating. Finish by explaining why YTM is not a guaranteed realised return.

11 · Drill 5 · Equity Value

C5 WORKED 5.1

Prompt. Expected dividend next year 3; growth 4% indefinitely; required return 10%.

`P₀ = 3/(0.10-0.04) = 50`

CHECK	PASS?	WHY
D_1 used	yes	3 is next year's dividend
r>g	yes	10% > 4%
spread	6 percentage points	denominator remains positive
horizon	indefinite	constant-growth assumption must be defensible

Conclusion: value 50 under the long-run growth and required-return assumptions. A correct calculation still needs the assumption boundary.

11b · Growth Stress + NPV Drill

C5 + C6 WORKED

Equity case D_1=3 · r=10%	**Dividend stream** growth 4% → 9%
Required return spread narrows	**Equity value** 50 → 300

Source-derived C5 case route: raising growth narrows the spread and makes value highly sensitive.

Equity transfer. Raise long-run growth to 9% while required return stays 10%: value becomes **300**. The positive one-point spread passes r>g mechanically but creates extreme sensitivity; do not accept it without stronger scrutiny.

CAPITAL-BUDGETING WORKED CASE

Prompt. Project costs 100,000; returns 60,000 after one year and 55,000 after two years; rate 8%.

Project case −100k; 60k; 55k	**Risk-adjusted rate** 8% then 12%
Incremental CF visible dates	**Recommendation** sign can reverse

Source-derived C6 case route: incremental cash flows and a risk-matched rate determine the recommendation.

`NPV = -100,000 + 60,000/1.08 + 55,000/1.08²`

`NPV ≈ 2,709.19`

The positive value supports acceptance only if the cash flows are incremental and 8% matches project risk.

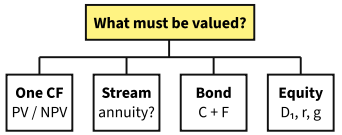
STRESS THE RATE

`at 12%, NPV ≈ -2,582.91 → decision reverses`

NPV AUDIT	WORKED CASE ANSWER
valuation date	time zero
initial sign	−100,000 outlay

12 · Method Chooser

ALL CHAPTERS



Every route: date → rate period + risk → calculate → interpret → boundary

New method chooser: classify the cash-flow object before selecting a supplied relationship.

SIGNAL IN PROMPT	METHOD FAMILY	MUST SAY
nominal rate + m	EAR	period alignment
equal finite stream	annuity	first payment date
coupons + face value	bond price	yield and final cash flow
D_1 + constant g	Gordon	r>g + sustainability
initial outlay + project CF	NPV	incremental CF + risk rate
alternative use of funds	opportunity cost	compare at same date

13 · Trap Ledger

TOPIC BOUNDARIES + FAQ

TRAP	REPAIR SENTENCE
formula before timeline	"First payment is at ___; value is at ___."
nominal = effective	"Convert with j and m before comparing."
ordinary = due	"A payment at time zero changes classification."
coupon rate = yield	"Coupons set cash flows; yield discounts them."
D_0 in Gordon numerator	"The model uses expected D_1."
positive NPV = unconditional	"Accept only under incremental-CF and risk assumptions."
financing counted twice	"Keep financing consistent with the valuation approach."
sensitivity without decision	"Change an input capable of reversing the conclusion."

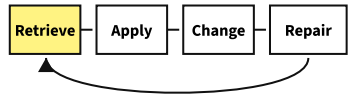
FAST-RECALL DEFINITIONS

TERM	SAY IT PRECISELY
present value	value at a stated date of future cash flows discounted at a required return
EAR	one-year growth after within-year compounding
annuity	finite equal payments at regular intervals
YTM	rate equating promised bond flows with price under stated assumptions
NPV	discounted incremental project flows less initial investment
cost of capital	required return matched to risk and financing assumptions

14 · Exam-Morning Plan

COURSE STUDY STRATEGY

definitions → mechanism → check → boundary



record the first failed move, not the whole answer

Source study cycle: retrieval, changed-case transfer and targeted repair.

1. **Blank-page rebuild:** draw the six method routes and write each boundary from memory.
2. **Recompute anchors:** 12.6825%; 1,361.62; 1,018.59; 50; 2,709.19.
3. **Say the meaning:** one sentence for the actor, valuation date and decision.
4. **Change one fact:** m, first payment, yield, growth or project rate.
5. **Repair first failure:** classification, timing, rate, cash flow, working or interpretation.

30-SECOND VERBAL CHECK	REQUIRED WORDS
time value	valuation date · period · present value
annuity	equal · finite · first payment
bond	coupon · principal · yield · assumptions
equity	D_1 · required return · sustainable growth
project	incremental · risk-adjusted · NPV · reversal

15 · Final Answer Audit

ALL CHAPTERS

★ **Classification:** did I name the model or cash-flow pattern?

★ **Timeline:** does each cash flow have a date and sign?

★ **Rate:** same period, appropriate risk, correct quote?

★ **Working:** visible substitution through the result?

★ **Interpretation:** whose value or decision changes?

★ **Boundary:** which assumption could reverse or weaken it?

★ **Consistency:** prose, equation, table and diagram agree on direction, denominator, date, sign and unit?

SIX PROMPTS TO ANSWER ALOUD

1. What is the best forgone comparable alternative?
2. Why can equal nominal rates produce different effective costs?
3. What single fact distinguishes an annuity due from an ordinary annuity?
4. Why does a higher yield lower a fixed-cash-flow bond price?
5. Why does a narrow r−g spread demand stronger scrutiny?