

FIN3702B – INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

AY2026/2027 Semester 1

COURSE DESCRIPTION

This is an introductory course in investments. It provides a comprehensive coverage of basic concepts, theories, applications and decision-making rules in financial investment. Topics to be covered include portfolio optimization, equilibrium asset pricing models, efficiency of capital markets, basic techniques of portfolio performance evaluation, and valuation of financial securities such as equities, bonds, futures, and options. On completion, students should be conversant in how to think about investments and portfolio management. Students will also develop competence in data analytics, financial simulations, and AI tools and learn how to use these tools to construct “optimal” portfolios for a given investor.

LEARNING OBJECTIVES

- Understand the principles of investment analysis and portfolio management across major asset classes.
- Collect, interpret, and analyse financial and market data for investment decision-making.
- Construct and evaluate portfolios based on risk-return trade-offs and investor objectives.
- Apply traditional asset pricing and portfolio management frameworks such as CAPM, factor models, duration analysis, and derivatives strategies.
- Critically evaluate how AI tools can be utilized in traditional asset pricing and portfolio management.

PREREQUISITES

- FIN2704 or FIN2704X
- Basic understanding of Excel Spreadsheet functions and/or the use of a financial calculator.

INSTRUCTOR

Mr. Winston Low
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COURSE MATERIALS

Recommended Text:

Investments (13th Edition) by Bodie, Zvi, Alex Kane & Alan Marcus, 2024
McGraw ISBN 978-1-264-41266-2.

All other course materials and information will be posted on Canvas. You are expected to check any updates and files on the Canvas system on the regular basis. You are encouraged to read the financial news regularly.

COURSE ASSESSMENT

Class Participation	10%
Canvas Quizzes	10%
Group Project	20%
Test 1	30%
Test 2	25%
<u>Ethics</u>	<u>5%</u>
Total	100%

I. Class participation (10%)

Both class preparation and participation are important. Class participation, from clarifying questions to insightful comments, is greatly encouraged. It will, however, be hard to contribute to the discussions if you are unprepared. I strongly encourage you to prepare for class. Your active participation will transform this class into a great learning experience for everyone, including myself.

II. Canvas quizzes (10%)

There will be Chapter Review quizzes posted on Canvas each week as a means of reviewing the material covered for that topic.

Marks are accorded as long as students attempt each quiz on time.

III. Group Project (20%)

Each group will complete **ONE** project.

The project deliverables shall be submitted through Canvas electronically and groups will make a presentation near the end of the semester.

Group members are expected to make an equitable contribution to the solution of the project and will receive the same grade for the assignment. Students that are outstanding during the presentation will be rewarded. Peer appraisals will be done to get feedback of each team member's contribution.

IV. Test 1 (30%) and Test 2 (25%)

A closed-book digital assessment will be held in **Week 7 and Week 12 (refer to tentative schedule below for dates & times).**

You may bring up to **TWO** calculators and **ONE double-sided A4-sized help sheet** for these tests. The examinable syllabus of each test will be finalized closer to each test date.

V. Investment Ethics (5%)

There will be online materials for study of Ethics and a quiz on the materials in Canvas. This is in compliance to NUS being a CFA affiliated institution.

SYLLABUS

Lecture 1: Introduction (BKM Chapter 1–5)

1. Different asset classes
2. How securities are traded – including the risk of roboadvisors and algorithmic investing
3. Calculation of risk & return

Lecture 2: Portfolio Theory (BKM Chapter 6–7)

1. Determine risk tolerance
2. Measure portfolio risk and return
3. Optimal asset allocation using traditional method and introduction to AI-assisted portfolio optimization

Lecture 3: Asset Pricing Models (BKM Chapter 8–10)

1. CAPM
2. APT
3. Single Index Model & Multi-Factor Model

Lecture 4: Efficient Market Hypothesis (EMH) & Behavioral Finance (BKM Chapter 11, 12.1)

1. Forms and Tests of Market Efficiency
2. Passive Investment and Active Investment
3. Behavioral Biases – including in algorithmic systems
4. Limitations and risks of AI usage in context of the EMH

Lecture 5: Performance Evaluation (BKM Chapter 24)

1. Performance Measurement for Passive Investment
2. Performance Measurement for Active Investment

Lecture 6: Security Analysis (BKM Chapter 17–18 & 12.2)

1. Macroeconomic Analysis
2. Industry Analysis
3. Fundamental and Technical Analyses
4. Introduction to using Large Language Models (LLMs) to scan news and social media for market sentiment analysis

Lecture 7: Introduction to Bonds (BKM Chapter 14–16)

1. Bond features, pricing and yields
2. Term Structure theories

Lecture 8: Bond Portfolio Investment (BKM Chapter 14–16)

1. Duration and Convexity
2. Bond Portfolio Investment Strategies

Lecture 9: Options & Futures (BKM Chapter 20–23)

1. Futures and Forwards mechanics and pricing
2. Investment with Futures and Forwards
3. Options valuation and strategies

SCHEDULE (Subject to Change):

Week of	Lesson	Topic	Deliverable
1 (10/8)	Lecture 1	Introduction	
2 (17/8)	Lecture 2	Portfolio Theory	
3 (24/8)	Lecture 3	Asset Pricing Models	
4 (31/8)	Lecture 4	Efficient Market Hypothesis & Behavioral Finance	
5 (7/9)	Lecture 5	Performance Evaluation	
	Lecture 6a	Security Analysis Part 1	
6 (14/9)	Lecture 6b	Security Analysis Part 2	
Recess Week			
7 (28/9)	Lecture 7	Introduction to Bonds	
Test 1 (Lectures 1-5) (3 rd Oct 4.00p.m. – 5.30p.m.)			
8 (5/10)	No lesson	NUS Well-Being Day on 9 th Oct	
9 (12/10)	Lecture 8	Bond Portfolios	
10 (19/10)	Lecture 9	Options and Futures	
11 (26/10)	No lesson	Self-revision + Consultations	Group Project (30/10@5pm)
12 (2/11)	Group Presentations 1		
Test 2 (Lectures 6-9) (7 th Nov 4.00p.m. – 5.30p.m.)			
13 (9/11)	Group Presentations 2		

ACADEMIC HONESTY & PLAGIARISM

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else's work or ideas and passing them off as one's own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule – You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubts, you should consult your instructor.

Additional guidance is available at:

<https://nus.edu.sg/campusconduct/>

Statements and E-Resources on Plagiarism:

<https://www.nus.edu.sg/celc/statements-and-e-resources-on-plagiarism/>

Academic Integrity Essentials:

<https://libguides.nus.edu.sg/new2nus/acadintegrity>